United States
Department of
Agriculture

Forest
Service

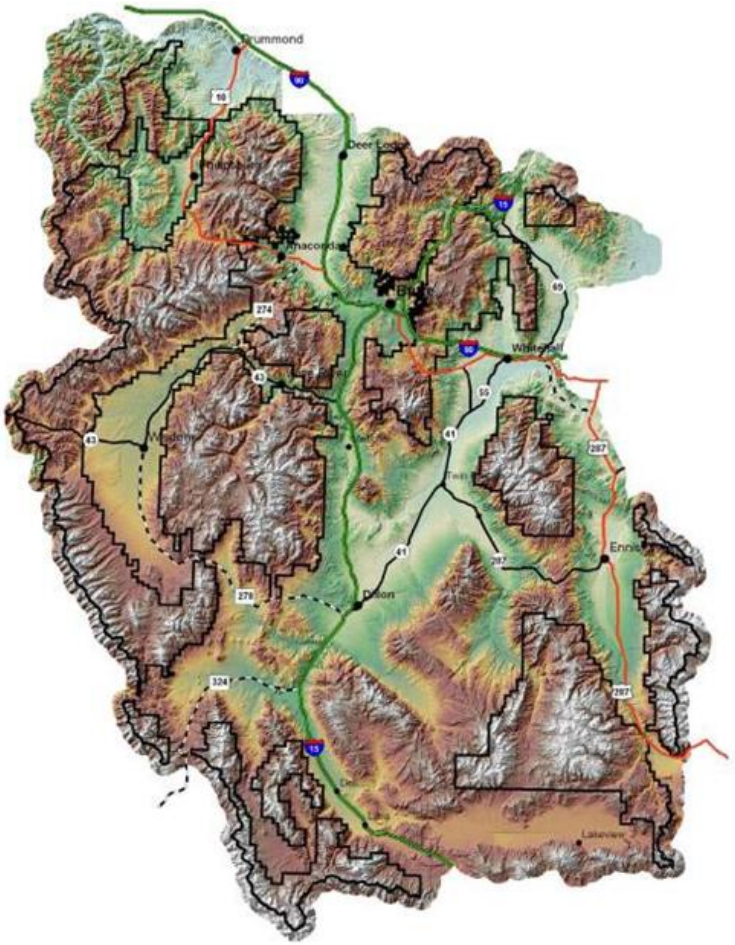
May 2016

Final Supplemental Environmental Impact Statement

For the

Beaverhead-Deerlodge National Forest Land and Resource Management Plan to Comply with the District Court Order (Winter Motorized Use)

Beaverhead, Deer Lodge, Granite, Jefferson, Madison, Powell, Silver Bow, and Gallatin Counties, Montana



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Final Supplemental Environmental Impact Statement

for the
Beaverhead-Deerlodge National Forest Land and Resource Management Plan
To Comply with the District of Montana Court Order

Beaverhead, Deer Lodge, Gallatin, Granite, Jefferson, Madison, Powell and Silver Bow Counties, Montana

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Abstract: In an August 27, 2015 Order, the US District Court for the District of Montana directed the Forest Service to disclose information underlying its analysis of snowmobile impacts on big game wildlife and apply the minimization criteria in the 2005 Travel Management Rule to areas open to winter motorized use. This Draft Supplemental Environmental Impact Statement (SEIS) to the January 2009 Beaverhead-Deerlodge National Forest Land and Resource Management Plan Corrected Final Environmental Impact Statement (FEIS) analyzes and discloses potential impacts by landscape of over snow vehicle use on big game wildlife. It also considers, with the objective of minimizing impacts on resources cited in the minimization criteria found at 36 CFR 212.55(b), for areas open to winter motorized use in six alternatives analyzed in the 2009 FEIS. The alternatives consider changes in areas open for over the snow vehicle use by landscape, that minimize impacts on the criteria.

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This Supplemental Environmental Impact Statement (SEIS) to the January 2009 Beaverhead-Deerlodge National Forest Land and Resource Management Plan Corrected Final Environmental Impact Statement (FEIS[1]) analyzes and discloses potential impacts of over snow vehicle use on big game wildlife and considers, with the objective of minimizing impacts on resources cited in the minimization criteria found at 36 CFR 212.55(b) for areas open to winter motorized use in six alternatives analyzed in the 2009 FEIS.[2]

Changes between Draft and Final

Minor grammatical, punctuation, format and other changes not influencing document content are not listed here.

- The public involvement section was updated to describe public participation opportunities following publication of the Draft SEIS in November, 2015. Responses to all comments on the Draft SEIS are included as Appendix G.
- Information about a time extension granted by the US District Court for the District of Montana was added.
- The big game existing condition and effects sections were updated based on comments and interviews with Montana Fish, Wildlife and Parks biologists.
- Based on public comment on the DSEIS, the wolverine section was updated to include Inman's model (2013).
- Based on public comment on the DSEIS, the grizzly bear section was updated to include additional effects and conclusions from the wildlife report.
- Several maps were updated. Figures 1-2 were updated to match the document map template. Figures 3-8 were updated to more clearly display the winter motorized restriction differences between Alternatives 1-6 Modified. Figure 8 was added to display Alternative 6 Modified in the same format as the other alternatives.
- Alternatives and mitigations measures suggested during the DSEIS public comment period were added.
- Literature citations were updated and the Reference section was to the end of the FSEIS. In the DSEIS, the reference section followed the appendices.
- Based on public comment on the DSEIS, information was added concerning potential effects of OSV use to small mammals.
- Information about recent OSV use monitoring in the Mount Jefferson area and education/enforcement activities was added to the Gravelly Landscape description of potential effects of motor vehicle use and existing or proposed recreational uses of National Forest System Lands or neighboring federal lands.

[1] As part of the BDNF Plan revision process, an FEIS was published in February, 2008 followed by a 90-day public comment period. In response to public comments, the 2008 FEIS was modified and published as the Corrected FEIS in January, 2009. In this SEIS, quotations from and page numbers for the FEIS refer to the 2009 Corrected FEIS for the BDNF Land and Resource Management Plan – not the 2008 FEIS.

[2] The FEIS, 2009 ROD and 2010 ROD are electronically available at: http://fs.usda.gov/goto/bdnf/forest-plan. Please scroll to the bottom of the page and click on "Link to Environmental Impact Statement and subsequent supplemental analysis".

- In response to comments, information about motorized and non-motorized winter recreationists cooperating to avoid conflicts between user groups and some non-motorized users preference for continued OSV use to accommodate access to their desired deep, back country snow activities was added to the conflict of use section.
- Information about how the SEIS accounts for the effects of existing and reasonably foreseeable changes in OSV technology was added.
- In response to comment, additional information about the West Pioneer and Sapphire Mountain Montana Wilderness Study Act Ares was added to the section concerning existing and proposed use of federal lands.
- Several reviewers provided comments about specific areas and routes on the BDNF. This information has been added to the applicable landscape description of winter recreation use.
- Maps of snowmobile routes on the BDNF are attached as Appendix H.
- The Literature Review Summary Regarding Vegetation section (DSEIS, pg. 93-94) has been updated. Information disclosed in the Draft SEIS published by McDaniel, 2013 (a graduate dissertation) has been replaced by updated, published research from McDaniel and Zielinska (2015).
- In response to comment, the Emissions section (DSEIS, pg. 167) was updated with research information published in Musselman and Korfmacher (2007).

Background

2009 Forest Plan

In a Record of Decision (ROD) dated January 14, 2009 (2009 ROD), Regional Forester Thomas Tidwell selected Modified Alternative 6 and approved the 2009 Forest Plan[3] for the Beaverhead-Deerlodge National Forest (BDNF). The Forest Plan provides broad programmatic management direction for activities on the 3.38 million acre BDNF for the next 10-15 years, including direction on eight revision topics (vegetation, wildlife, aquatic resources, recreation and travel management, fire management, livestock grazing, timber and recommended wilderness). This direction revised previous management direction from the 1986 Beaverhead National Forest Plan and the 1987 Deerlodge National Forest Plan.

The 504-page Forest Plan provides management direction for activities on the 3.38 million acre BDNF and established forestwide management goals, objectives and standards for 17 specific resources and additional direction specific to 86 management areas. While the 2009 ROD approved the Forest Plan, it did not make site-specific project level decisions; rather direction in the Forest Plan applies to subsequent projects and decisions.

The 2009 Forest Plan, through 86 different management area prescriptions, identified where

[3] The Court frequently references the Forest Plan as the "Revised Forest Plan" to distinguish between the 2009 Forest Plan and the 1986 Beaverhead and 1987 Deerlodge Forest Plans. In this SEIS, the 2009 BDNF Land and Resource Management Plan is referenced as the "Forest Plan". It is electronically available at: http://fs.usda.gov/goto/bdnf/forest-plan.

over snow vehicle (OSV)[4] use is allowable and where it is not allowed. The 2009 ROD describes the rationale for these allocations under Revision Topic #4: Recreation and Travel Management (2009 ROD pgs. 13 – 15). These allocations guide future decisions. Future site-specific decisions may not allow OSV use where the Forest Plan does not allow it. In contrast, while the Forest Plan allows for OSV use in some management areas, it does not require it. Subsequent site-specific decisions may prohibit this activity where needed to protect or promote local resource values within the broader multiple-use prescriptions.

As part of addressing the recreation and travel management revision topic, the Forest Plan prescribed motorized and non-motorized allocations for large blocks of land. Pages 14-15 of the 2009 ROD explain the decision rationale to allocate 40% of the BDNF to winter non-motorized recreation. In addition to areas previously closed (before 2009) to winter motorized use (16% of the BDNF), this decision allocated another 24% of the BDNF to winter non-motorized recreation. No routes or areas closed to OSV under the prior plans were allocated to winter motorized recreation. Winter recreation allocations resulting from the 2009 ROD are displayed on page 55 of the Forest Plan which is included on the next page as Figure 1.

2010 Forest Plan-Related Motorized Closures

As explained in the 2009 ROD (pg. 23), the Forest Plan established desired conditions, standards and allowable uses but did not make site-specific decisions such as closing individual motorized routes in areas recommended for wilderness. In the 2009 ROD, the Regional Forester directed the Forest Supervisor to issue a second ROD, based on the analysis in the 2009 FEIS, making site-specific decisions closing areas and routes to motorized use based on Forest Plan direction and signing and enforcing those closures.

On February 12, 2010, Forest Supervisor David Myers signed the ROD Enacting Forest Plan Travel Management Direction for Certain Areas of the BDNF (2010 ROD). This 2010 ROD closed those areas to winter motorized travel that the 2009 Forest Plan had allocated to winter non-motorized prescriptions (December 2 through May 15). Special Order 2010-BD-032, signed by Forest Supervisor David Myers July 6, 2010, implemented the decision; initiating signing and enforcement of these motorized closures. Prior to signature of this Special Order, 2,830,538 acres of the BDNF were open to winter motorized use (FEIS, pg. 366). After signature, 2,043,372 acres of the BDNF remained open to winter motorized use (2010 ROD, pg. 3).

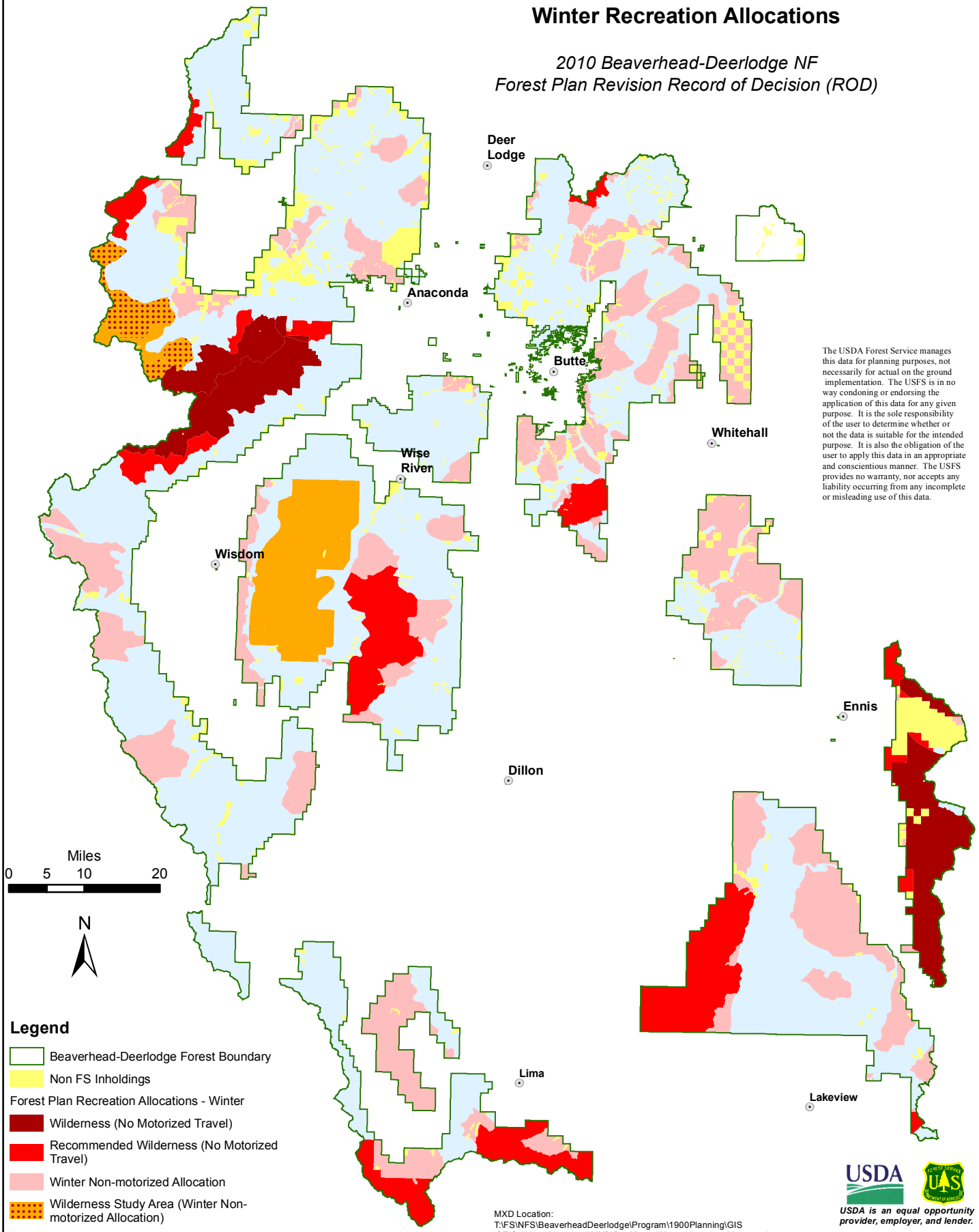
US District and Appellate Courts

On September 7, 2010, Wildlands CPR, Inc.[5], Friends of the Bitterroot, Inc., and Montanans for Quiet Recreation filed a complaint in US District Court for the District of Montana (Case 98:10-

[4] Among other types of vehicle use, 36 CFR §212 specifically speaks to the use of over-snow-vehicles or OSVs. An OSV is a motor vehicle designed for use over snow that runs on a track or tracks and/or a ski or skis, while in use over snow (36 CFR §212.1). For consistency in applying minimization criteria identified in the same regulations, this SEIS uses the term OSV instead of snowmobile.
[5] Wildlands CPR later merged with WildEarth Guardians.

Winter Recreation Allocations

2010 Beaverhead-Deerlodge NF
Forest Plan Revision Record of Decision (ROD)



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Legend

- Beaverhead-Deerlodge Forest Boundary
- Non FS Inholdings

Forest Plan Recreation Allocations - Winter

- Wilderness (No Motorized Travel)
- Recommended Wilderness (No Motorized Travel)
- Winter Non-motorized Allocation
- Wilderness Study Area (Winter Non-motorized Allocation)
- Wilderness Study Area (Winter Motorized Allocation)
- Winter Motorized Allocation

MXD Location:
T:\FS\NFS\BeaverheadDeerlodge\Program\1900Planning\GIS\SEIS_WinterMotorized\MXD\DocMaps_WinterAllocationsMaps.mxd

Plotfile Location:
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B-D GIS
jto 3/21/2016

This map replaces all maps of same title with previous date

CV-00104-DWM) alleging inadequate analysis of the impacts of winter motorized travel when developing the Forest Plan and failure to analyze criteria intended to minimize off-road vehicle impacts.

District Court April 2, 2012 Order

In an Order dated April 2, 2012, the US District Court for the District of Montana found the Forest Service adequately applied the minimization criteria of Executive Order (EO) 11644 for areas open to snowmobile use and adequately analyzed snowmobile impacts to big game. However, the court found "to the extent that specific routes have been designated for snowmobile use", the Forest Service failed to show it adequately applied the minimization criteria at the route-specific level. The court ordered as follows: "that this case is remanded to the Forest Service for the limited purpose of applying the minimization criteria mandated by EO 11644 at the route specific level where specific snowmobile routes are designated. The Forest Service shall perform this analysis and update the Revised Forest Plan by September 30, 2012[6]".

Agency Response to April 2, 2012 District Court Remand

In response to the District Court's remand, the BDNF prepared a Draft and Final Supplemental EIS (FSEIS) evaluating potential effects relevant to applying the minimization criteria established in EO 11644 at the route-specific level where snowmobiles routes were delineated in the 2009 Forest Plan. The November 2012 FSEIS provides additional environmental analysis for three routes identified in the Forest Plan as exceptions within winter non-motorized areas, specifically:

- Snowmobile use through the Electric Peak area near Thunderbolt Creek and Cottonwood Lake (Jefferson County, Montana),
- Snowmobile use through the non-motorized area on the Road #056 corridor in the vicinity of Antelope Basin (Beaverhead County, Montana), and
- Snowmobile use on the road to Antone Cabin in the southwest portion of the Snowcrest Mountains (Beaverhead County, Montana) (2012 FSEIS, pg. 3)

On November 14, 2012, the Regional Forester signed a Determination and Affirmation of Prior Decision[7] in response to the District Court Order. Based on analysis in the 2012 FSEIS, public comment, and applying the minimization criteria to the three routes designated for snowmobile use in the Forest Plan, the Regional Forester determined a new decision for the Forest Plan was not needed and the routes are appropriately managed as limited exceptions to winter non-motorized allocations (Determination, pg. 3).

[6] On October 15, 2012, the U.S. District Court for the District of Montana extended the deadline to November 16, 2012.

[7] The 2012 FSEIS and 11/14/12 Determination and Affirmation of Prior Decision are electronically available at: http://fs.usda.gov/goto/bdnf/forest-plan. Please scroll to the bottom of the page and click on "Link to Environmental Impact Statement and subsequent supplemental analysis".

Appeal to Ninth Circuit and Ninth Circuit Opinion

Wildlands CPR, Inc., Friends of the Bitterroot, Inc., and Montanans for Quiet Recreation appealed the April 2, 2012, US District Court decision on a number of issues including the District Court's finding that the Forest Service complied with the minimization criteria of EO 11644 for areas open to snowmobile use and adequately disclosed impacts of snowmobile use on big game. In a June 22, 2015 Opinion, the US Court of Appeals affirmed "…the district court's ruling that the EIS sufficiently analyzed the conflicts between snowmobiles and other recreational uses in the Revised Forest Plan. Further, we agree that WildEarth's challenge to the Subpart C exemption in the TMR is not ripe for review".

However, in the same opinion the US Court of Appeals reversed "…the district court's NEPA ruling, in part, because the Forest Service did not properly disclose the information underlying its analysis of snowmobile impacts on big game wildlife in the EIS" and reversed "…the district court's ruling that the Forest Service adequately applied the minimization criteria in the TMR". The Ninth Circuit remanded the case to District Court.

District Court August 27, 2015 Order

Pursuant to the Ninth Circuit's June 22, 2015 Opinion, in an August 27, 2015 Order, the US District Court for the District of Montana ordered the Forest Service to "…'properly disclose the information underlying its analysis of snowmobile impacts on big game wildlife' and 'adequately appl[y] the minimization criteria in the [2005 Travel Management Rule]'". The District Court further ordered the Forest Service to "…make the proper disclosures, perform the proper analysis, and update the Revised Forest Plan by February 29, 2016. A failure to do so will result in the suspension of the winter travel management portion of the Revised Forest Plan as of March 1, 2016." On March, 3, 2016, in light of a change in forest planning regulations, the US District Court for the District of Montana extended the timeline for completion of make the proper disclosures, perform the proper analysis and updated the Revised Forest Plan until October 13, 2016.

Minimization Criteria

Among other requirements, the final rule for *Travel Management; Designated Routes and Areas for Motor Vehicle Use*[8] (commonly referred to as the 2005 Travel Management Rule or TMR) implements provisions of EO 11644 and 11989 regarding off-road use of motor vehicles on Federal lands. Regulations implementing this rule are found at 36 CFR §212. The "minimization criteria" referenced in the 2015 Circuit Court Opinion and District Court Order are found at 36 CFR §212.55(b) *Specific criteria for designation of trails and areas*, and specify :

> "…in designating National Forest System trails and areas on National Forest System lands, the responsible official shall consider effects on the following with the objective of minimizing:
>
> 1) Damage to soil, watershed, vegetation, and other forest resources;

[8] The final rule was published in the Federal Register, Vol. 70, No. 216, November 9, 2005.

2) Harassment of wildlife and significant disruption of wildlife habitats;

3) Conflicts between motor vehicle use and existing or proposed recreations uses of National Forest System lands or neighboring Federal lands; and

4) Conflicts among different classes of motor vehicle uses of National Forest System lands or neighboring Federal lands.

In addition, the responsible official shall consider:

5) Compatibility of motor vehicle use with existing conditions in populated areas, taking into account sound, emissions, and other factors."

Purpose of this SEIS

The purpose of this supplement is to comply with the August 27, 2015, US District Court for the District of Montana Order by disclosing potential snowmobile impacts on big game wildlife and applying the minimization criteria in the 2005 Travel Management Rule.

This SEIS evaluates information underlying the analysis of snowmobile impacts on big game wildlife and resources cited in the minimization criteria (described in the previous section) for areas on the BDNF considered open for OSV use during the winter recreation season (December 2 through May 15) in six alternatives analyzed in detail in the 2009 BDNF Land and Resource Management Plan FEIS.

After evaluating potential impacts from OSV use on big game wildlife and the resources cited in the minimization criteria disclosed in this SEIS, the responsible official, BDNF Supervisor Melany Glossa, will consider the analysis in the SEIS, public comment, apply the minimization criteria to areas remaining open to OSV use and determine whether an amendment to Forest Plan direction is needed or whether site specific changes would be necessary.

Public Involvement

Public involvement for revision of the 2009 Forest Plan is described in the 2009 FEIS (pg. 10), 2009 ROD (pg. 30) and 2010 ROD (pg. 12-13) and summarized here. Revision formally began with publication in the Federal Register of a Notice of Intent (NOI) to prepare an EIS on May 3, 2002. Four public comment opportunities were provided. The DEIS was available for public comment for 120 days ending October 31, 2005 and generated more than 11,000 letters and emails. An FEIS was published in February, 2008. While a comment period was not required for the 2008 FEIS, an additional 90-day comment period was offered due to high public interest and the length of time since release of the DEIS. The FEIS comment period in 2008 generated more than 32,500 letters, phone calls and email messages. The interdisciplinary team responded to all comments.

In response to the August 27, 2015 Order from the US District Court for the District of Montana, an NOI to prepare a Supplemental EIS was published in the Federal Register (Vol. 80. No. 176) on September 11, 2015. Pursuant to 40 CFR §1502.9(c)(4), a formal scoping period for this SEIS was not offered. The NOI explained a Draft SEIS was expected to be available for public review and comment in November 2015, and the Draft SEIS (DSEIS) comment period would be 90 days

from the date the Notice of Availability is published in the Federal Register in accordance with 36 CFR §219.16(a)(2).

The DSEIS was electronically published on the BDNF web page November 23, 2016. A letter informing nearly 600 individuals and organizations of the availability of the DSEIS for a 90-day comment period and expected publication of a Notice of Availability (NOA) was mailed November 25, 2015. Publication of the NOA was delayed until the December 4, 2015 Federal Register. Information about the delay, and revised publication date was posed on the BDNF web page November 30, 2015. The NOA was posted December 5, 2015 and, upon request, GIS data used during preparation of the DSEIS was posted December 23, 2015. We received 224 letters and email messages providing comments on the DSEIS. Interdisciplinary team responses to public comment are included as Appendix G.

Summary – 2009 Forest Plan FEIS

This SEIS supplements analysis in the 1,454-page Forest Plan FEIS, specific to potential effects of winter motorized use on big game and resources cited in the minimization criteria. This section of the SEIS summarizes the overall context of the Forest Plan Revision effort and places the winter motorized allocations from the Forest Plan within the context of the FEIS analysis.

Reviewers are reminded, when placing this SEIS in context with the 2009 FEIS, that Forest Plan level winter motorized allocations were proposed as a subset within the far larger context of allocations for all resources across the entire Forest. This section of the SEIS attempts to assist reviewers in placing winter motorized allocations within the broader context of the Forest Plan and then point reviewers towards the 2009 FEIS discussions concerning allocating additional areas to winter non-motorized use.

The intent of revision is to provide a Forest Plan that:

- Guides all natural resource management activities on the BDNF for the next 15 years,
- Addresses changed conditions and directions that have occurred since the original plans were approved,
- Meets federal laws, regulations, and policies, and
- Provides consistent direction for the BDNF (FEIS, pg. 2).

The 2009 FEIS identified and analyzed the following eight key issues (FEIS, pg. 14-18):

1) Vegetation management
    a. Forest stand structure
    b. Aspen
    c. Grassland/Shrubland
    d. Old-growth
2) Wildlife management
    a. Wildlife security
    b. Elk habitat effectiveness
3) Aquatic resource management

   a. Aquatic restoration
   b. Bull trout and westslope cutthroat trout conservation
   c. Aquatic strategies
4) Recreation and travel management
   a. Summer issue
   b. Winter issue
5) Fire management
6) Suitable rangeland
7) Suitable timberland
8) Wilderness recommendations

FEIS Winter Issue for Recreation and Travel Management

The key issue description for winter recreation and travel management is:

> "Some public comments indicated a desire to maintain existing motorized recreation opportunities in summer and winter while others wanted to expand quiet areas free of motorized use with easy vehicle access and parking. Yet others wanted increased motorized opportunities…
>
> **Winter issue:** Where and how many acres are allocated and managed for winter motorized and non-motorized opportunities?
>
> **Decision criteria:** Percent of the Forest and location of areas allocated as non-motorized…" (FEIS pg. 16)

The "action" (changed condition) proposed in the 2009 FEIS alternatives was to ***close*** areas, hence, analysis in the 2009 FEIS disclosed the effects of closing additional areas to OSV use, not opening areas. No routes or areas closed to over snow vehicles (OSV) under the prior plans were "opened" with this revision.

Forest Plan Landscapes

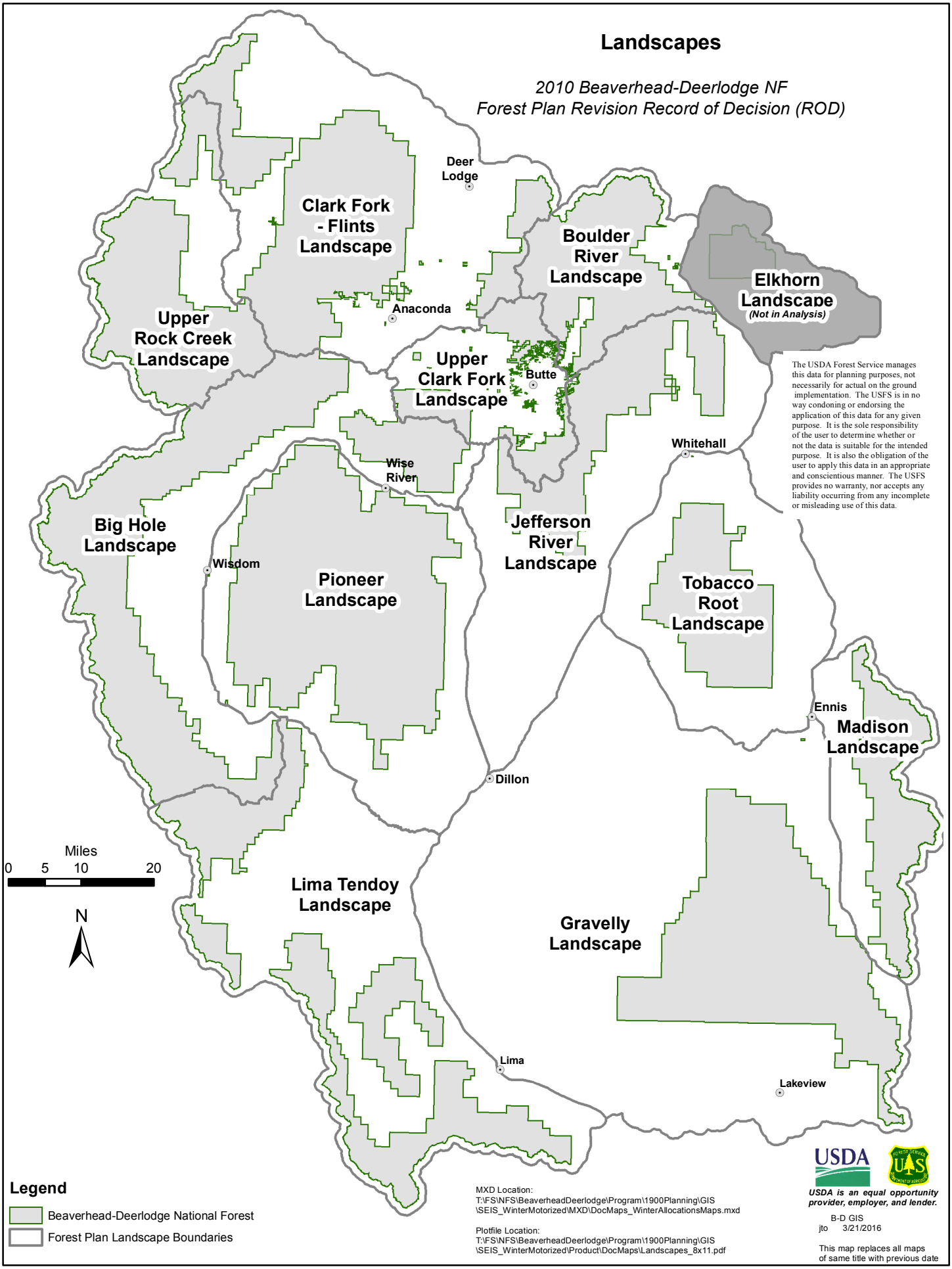
FEIS analysis of the recreation and travel management and wildlife habitat key issues was disclosed at the forest scale and landscape scale (Figure 2) [9]. This SEIS analyzes effects at the same scales.

2009 Forest Plan Direction for Winter Motorized Recreation

Forest Plan direction applicable to winter motorized recreation is:

Aquatic Resources Goal – Recreation Sites: **"**Developed sites, dispersed sites, and trails are designed, constructed, and maintained in a manner which achieves desired stream function" (Forest Plan, pg. 16)

[9] BDNF lands in the Elkhorn Mountains are managed in cooperation with the Helena National Forest. Revision of management direction for the Elkhorn Mountains will take place during revision of the Helena National Forest Plan (2009 ROD, pg. 32 and FEIS, pg. 1). While the Elkhorn Mountains are part of the BDNF, this landscape is not analyzed in the 2009 FEIS or this SEIS.



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Aquatic Resources Objective – Recreations Sites: "Existing, new, dispersed, or developed recreation sites and trails in RCAs[10] are adjusted if they retard or prevent attainment of desired stream function, or adversely affect threatened or endangered species or adversely impact sensitive species. Adjustments may include education, use limitations, traffic control devices, increased maintenance, and relocation of facilities" (Forest Plan, pg. 18)

Aquatic Resources Standard 23: **"**Where adjustments of recreation use impacts on desired stream function are not successful, terminate activity or occupancy" (Forest Plan, pg. 20).

Economics and Social Values Goal – Economy Contribution: **"**Contribute to the social and economic well-being of local communities by promoting use of renewable natural resources. Provide...recreation settings consistent with other resource goals" (Forest Plan, pg. 21).

Recreation and Travel Management Goals – Recreation Settings: **"**Offer a choice of recreation settings ranging from remote backcountry to more developed front country areas…" (Forest Plan, pg. 29).

Recreation and Travel Management Goal – Winter Motorized Allocations: **"**Provide roaded and semi-primitive motorized recreation settings in these areas, and offer opportunities for a variety of motorized and non-motorized travel and activities. The majority of these allocations provide opportunities for travel by snowmobile" (Forest Plan, pg. 30).

Recreation and Travel Management Goal – Recreation Opportunities: "High quality diverse outdoor recreation opportunities are provided, including but not limited to:

- Day use activities within a 30 minute drive of communities for motorized and non-motorized trails…
- Winter use areas near communities for ski touring, snowshoeing and snowmobiling" (Forest plan, pg. 30)

Recreation and Travel Management Standard 2: Motorized vehicles are not allowed in…winter non-motorized allocations except for permitted or administrative use (Forest Plan, pg. 32).

FEIS Alternatives Analyzed in Detail

The FEIS analyzed six alternatives in detail (FEIS, pg. 23-30). In the 2009 ROD, the Regional Forester selected a modified version of Alternative 6.

In addition to alternative-specific actions (summarized below), the FEIS considered fourteen elements common to all alternatives (FEIS, pg. 18-21). Specific to this SEIS, all alternatives include the following element for Winter Non-Motorized allocations:

> "These allocations are designed to protect low elevation winter range for deer, elk, and moose; protect high elevation secure habitat for mountain goat and wolverine. They also provide quiet winter recreation opportunities in locations people can drive to. Primitive and semi-primitive non-motorized recreation settings are provided in these areas, and offer opportunities for ski touring, snowshoeing, and hiking, and other non-motorized activities. Motorized use will not be allowed in this allocation" (FEIS, pg. 20).

[10] RCA = Riparian Conservation Area

The action alternatives (Alternatives 2 through 6 Modified) restrict motorized travel in recommended wilderness (FEIS, pg. 22) and continue current (prior to the 2009 ROD) travel restrictions on seasons and type of use in all areas outside of recommended wilderness or non-motorized allocations (FEIS, pg. 23).

The following sections describe the six alternatives considered relative to winter recreation allocations. Readers are referred to the FEIS (pg. 23-30) for complete descriptions of the alternatives.

The 2009 FEIS also considered and eliminated from detailed study an additional seventeen alternatives (FEIS, pg. 30-37); including an alternative with no snowmobile restrictions and an alternative proposing site-specific travel management.

The 2009 FEIS discloses "Consideration of an alternative with no restrictions on snowmobiles would adversely impact resources by not protecting big game winter range and sensitive wildlife habitats. This alternative would not provide wildlife security and could adversely impact TES species. It would also not provide any quiet recreation opportunities. Therefore it is not considered reasonable and was not analyzed in detail" (FEIS, pg. 33).

For the site-specific travel management alternative, the FEIS discloses "A forest plan is strategic, making decisions concerning desired conditions, objectives, standards, and allocation of suitable uses. We identified key issues (see key issues above) related to vehicle access and travel management and will make decisions concerning these key issues. The alternative to consider road by road or trail by trail travel planning was considered but not fully developed because this sort of decision is more appropriate to make at a site-specific level. This will be accomplished through site-specific travel management planning after the revised plan has been completed. This is not to say decisions resulting from this analysis will not close some roads or trails to motorized vehicles" (FEIS, pg. 34).

Alternative 1

Alternative 1 is the No Action Alternative which provides a baseline for comparison of the other alternatives as required by the NEPA. "No Action" means management allocations, activities, and management direction described in the 1986 and 1987 forest plans continues. Approximately 16% of the BDNF would remain allocated as a non-motorized winter setting as depicted in Figure 3. This includes motorized use in recommended wilderness and wilderness study areas (FEIS, pg. 23-24 and 69).

Alternative 2

Alternative 2 is the Proposed Action released for public review in 2003. Approximately 22% of the BDNF would be allocated as a non-motorized winter setting as depicted In Figure 4. Recommended wilderness would be closed to motorized travel (FEIS, pg. 25 and 70).

Alternative 3

Alternative 3 addresses public comments asking the agency to allow natural processes to maintain ecosystems, minimize mechanical vegetation treatment and conserve or restore aquatic health. Approximately 45% of the BDNF would be allocated as a non-motorized winter

setting as depicted in Figure 5. Recommended wilderness would be closed to motorized travel (2009 FEIS, pg. 25-26 and 71).

Alternative 4

Alternative 4 responds to public comments that forest management should directly benefit local economies and utilitarian traditions of families and communities through management emphasis on predictable sustained commodity outputs while allowing a variety of other uses. Approximately 15% of the BDNF would be allocated as a non-motorized winter setting as depicted in Figure 6. No acres are identified as recommended wilderness (FEIS, pg. 27 and 72).

Alternative 5

Alternative 5 was developed to balance the demand for diverse recreation opportunities, resource protection and commodity outputs. Approximately 37% of the BDNF would be allocated as a non-motorized winter setting as depicted in Figure 7. Recommended wilderness would be closed to motorized travel (FEIS, pg. 27-29 and 73).

Alternative 6 Modified

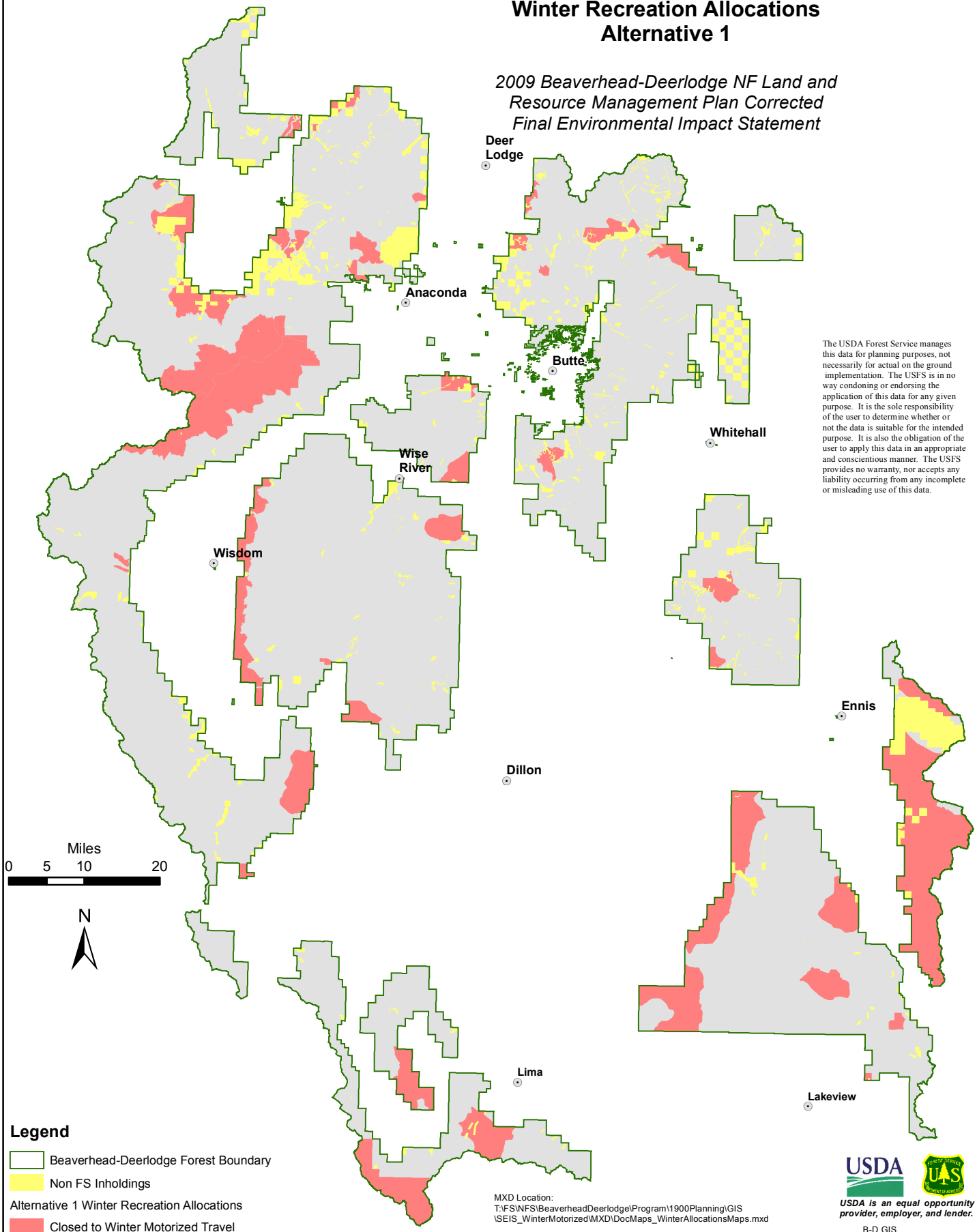
Alternative 6 was developed after review of almost 11,000 comments and over 160 meetings with 90 interested groups and individuals. It reflects an attempt to balance the demand for diverse recreation opportunities, resource protection and commodity outputs and to positively respond to many comments and corrections to the 2005 DEIS (FEIS, pg. 29).

In the 2009 ROD, the Regional Forester selected a modified version of Alternative 6. This SEIS does not analyze Alternative 6 as described in the 2009 FEIS. Rather, it analyzes Alternative 6 Modified as described in the 2009 ROD because the Forest Plan is based on this alternative and, following signature of the 2010 ROD, winter recreation allocations have been managed as described in Alternative 6 Modified.

Alternative 6 Modified allocates approximately 40% of the BDNF as a non-motorized winter setting as depicted in Figure 8 . Motorized use is excluded from recommended wilderness (2010 ROD, pg. 6).

Winter Recreation Allocations
Alternative 1

2009 Beaverhead-Deerlodge NF Land and Resource Management Plan Corrected Final Environmental Impact Statement



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Legend

- Beaverhead-Deerlodge Forest Boundary
- Non FS Inholdings

Alternative 1 Winter Recreation Allocations

- Closed to Winter Motorized Travel
- Remain Open to Winter Motorized Travel

MXD Location:
T:\FS\NFS\BeaverheadDeerlodge\Program\1900Planning\GIS\SEIS_WinterMotorized\MXD\DocMaps_WinterAllocationsMaps.mxd

Plotfile Location:
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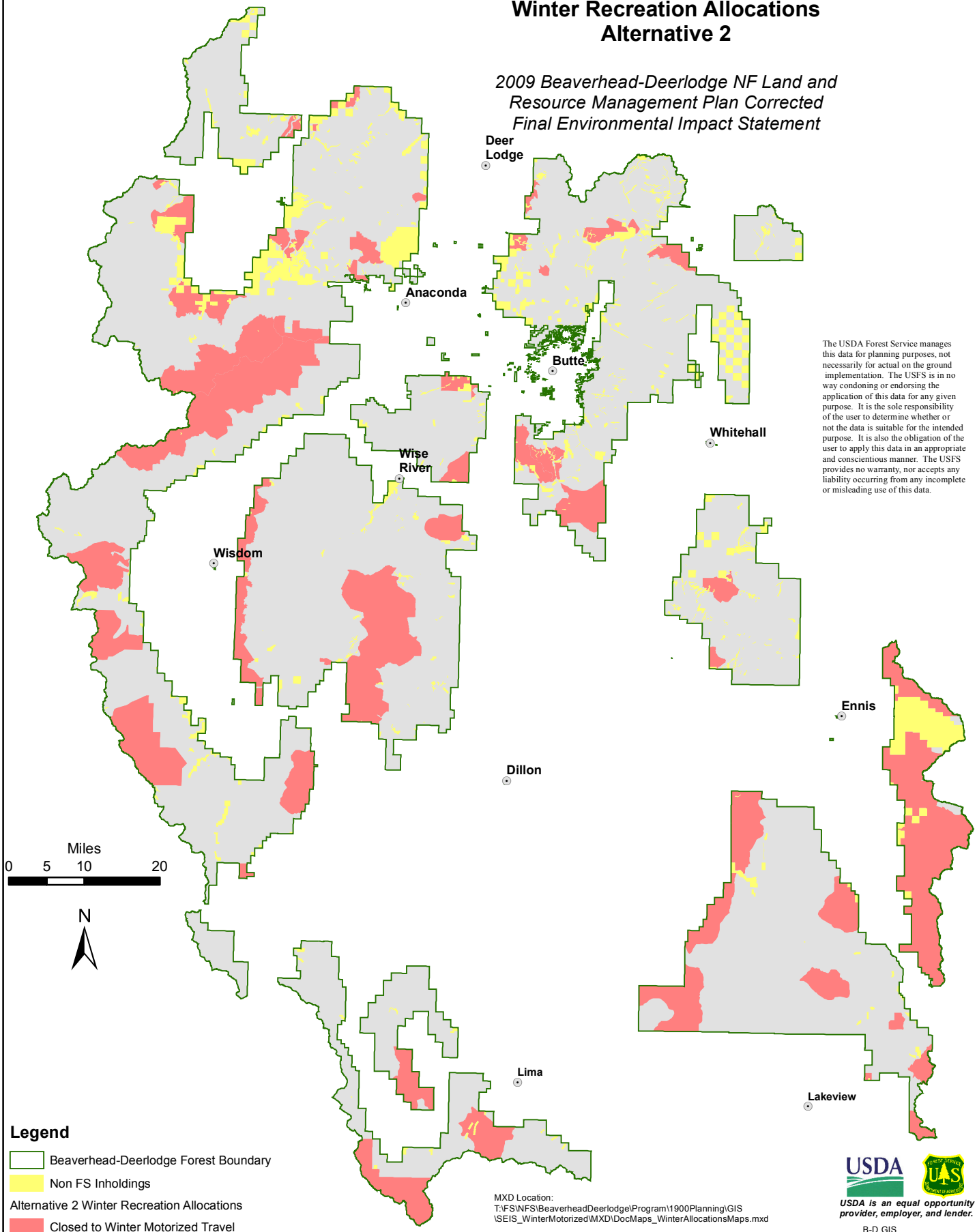
jto 3/21/2016

This map replaces all maps of same title with previous date

Winter Recreation Allocations
Alternative 2

2009 Beaverhead-Deerlodge NF Land and Resource Management Plan Corrected Final Environmental Impact Statement



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Legend

- Beaverhead-Deerlodge Forest Boundary
- Non FS Inholdings

Alternative 2 Winter Recreation Allocations

- Closed to Winter Motorized Travel
- Remain Open to Winter Motorized Travel

MXD Location:
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Plotfile Location:
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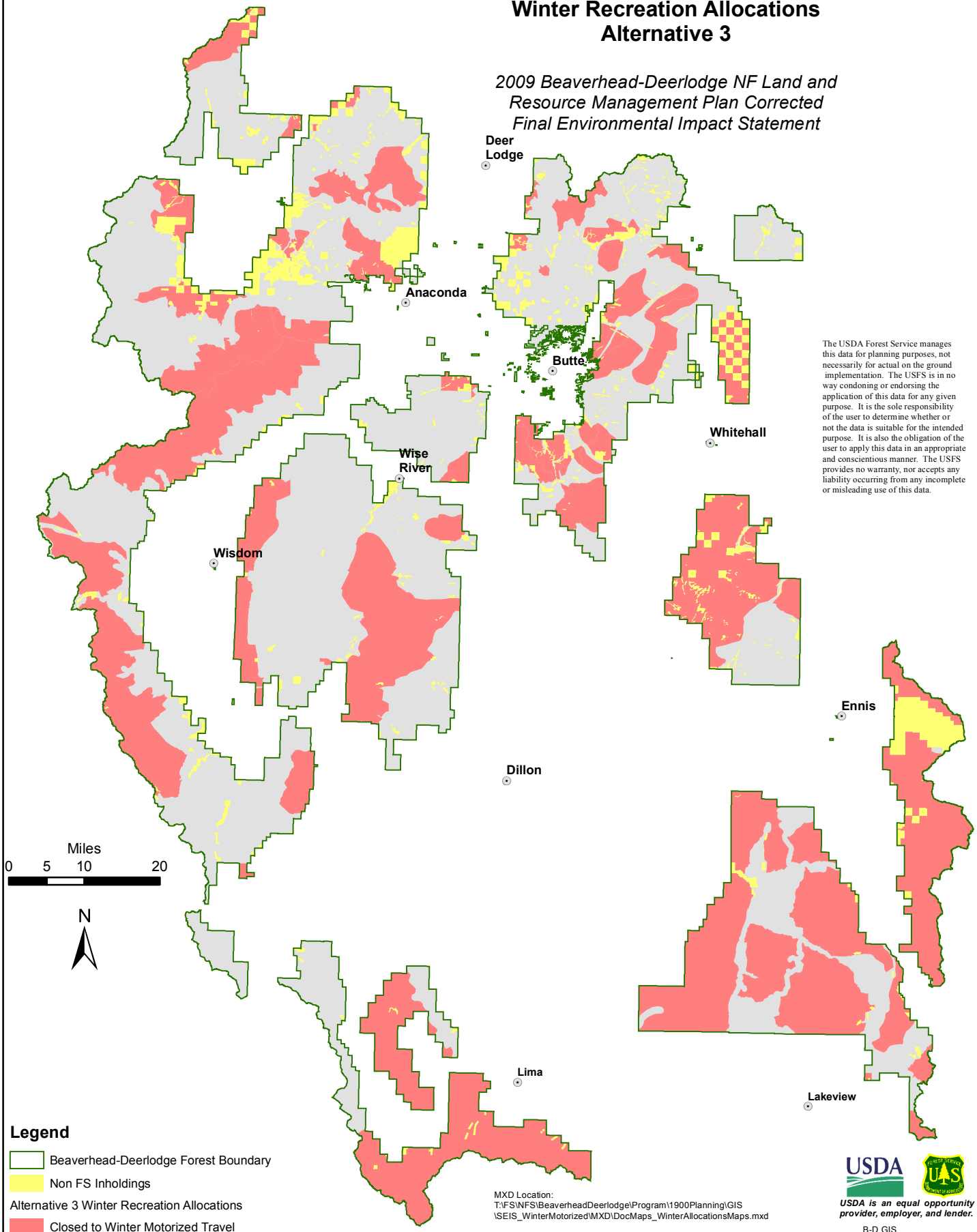
Winter Recreation Allocations
Alternative 3

2009 Beaverhead-Deerlodge NF Land and Resource Management Plan Corrected Final Environmental Impact Statement



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Legend

- Beaverhead-Deerlodge Forest Boundary
- Non FS Inholdings

Alternative 3 Winter Recreation Allocations

- Closed to Winter Motorized Travel
- Remain Open to Winter Motorized Travel

MXD Location:
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Plotfile Location:
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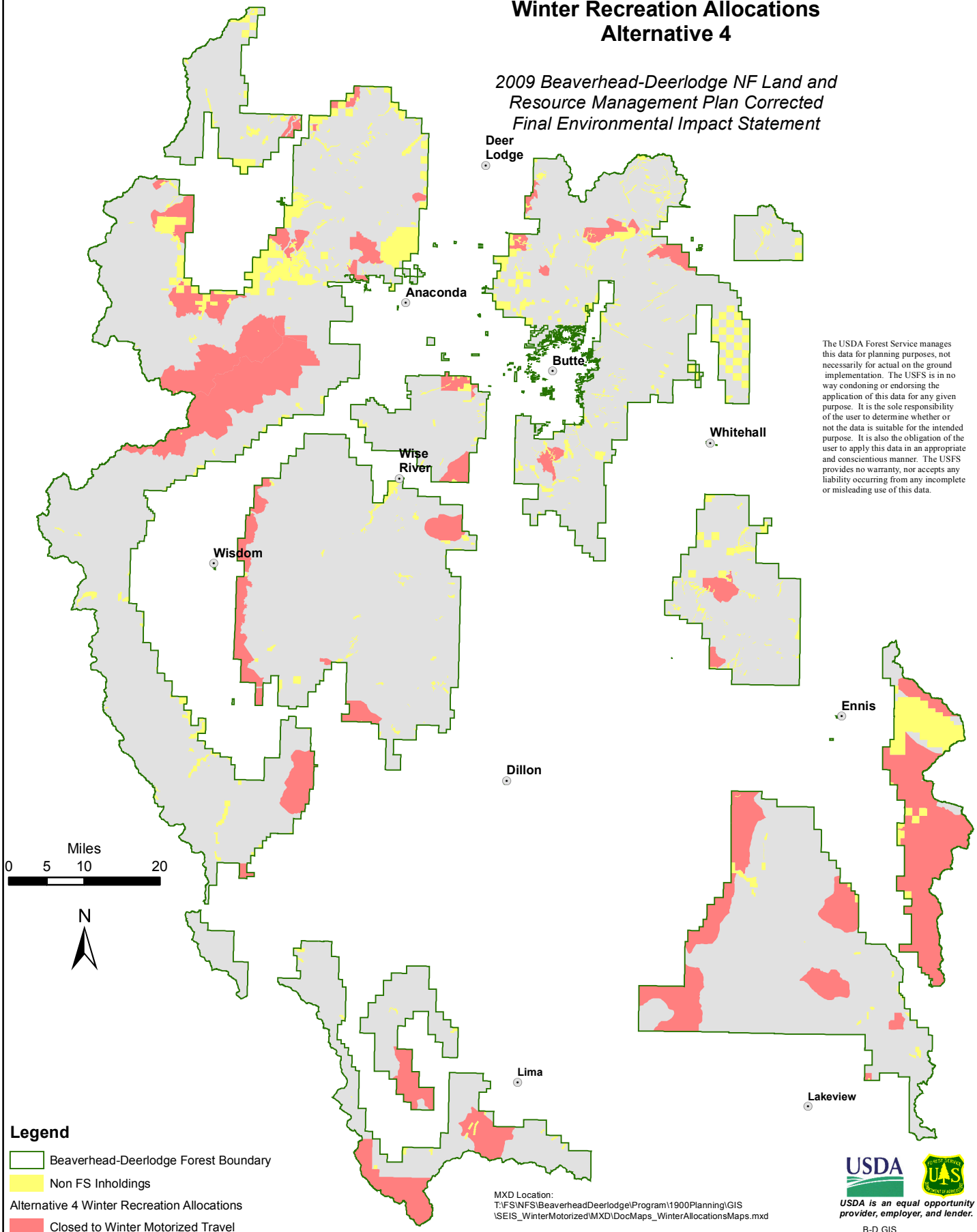
This map replaces all maps of same title with previous date

Winter Recreation Allocations
Alternative 4

2009 Beaverhead-Deerlodge NF Land and Resource Management Plan Corrected Final Environmental Impact Statement



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Legend

- Beaverhead-Deerlodge Forest Boundary
- Non FS Inholdings

Alternative 4 Winter Recreation Allocations

- Closed to Winter Motorized Travel
- Remain Open to Winter Motorized Travel

MXD Location:
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Plotfile Location:
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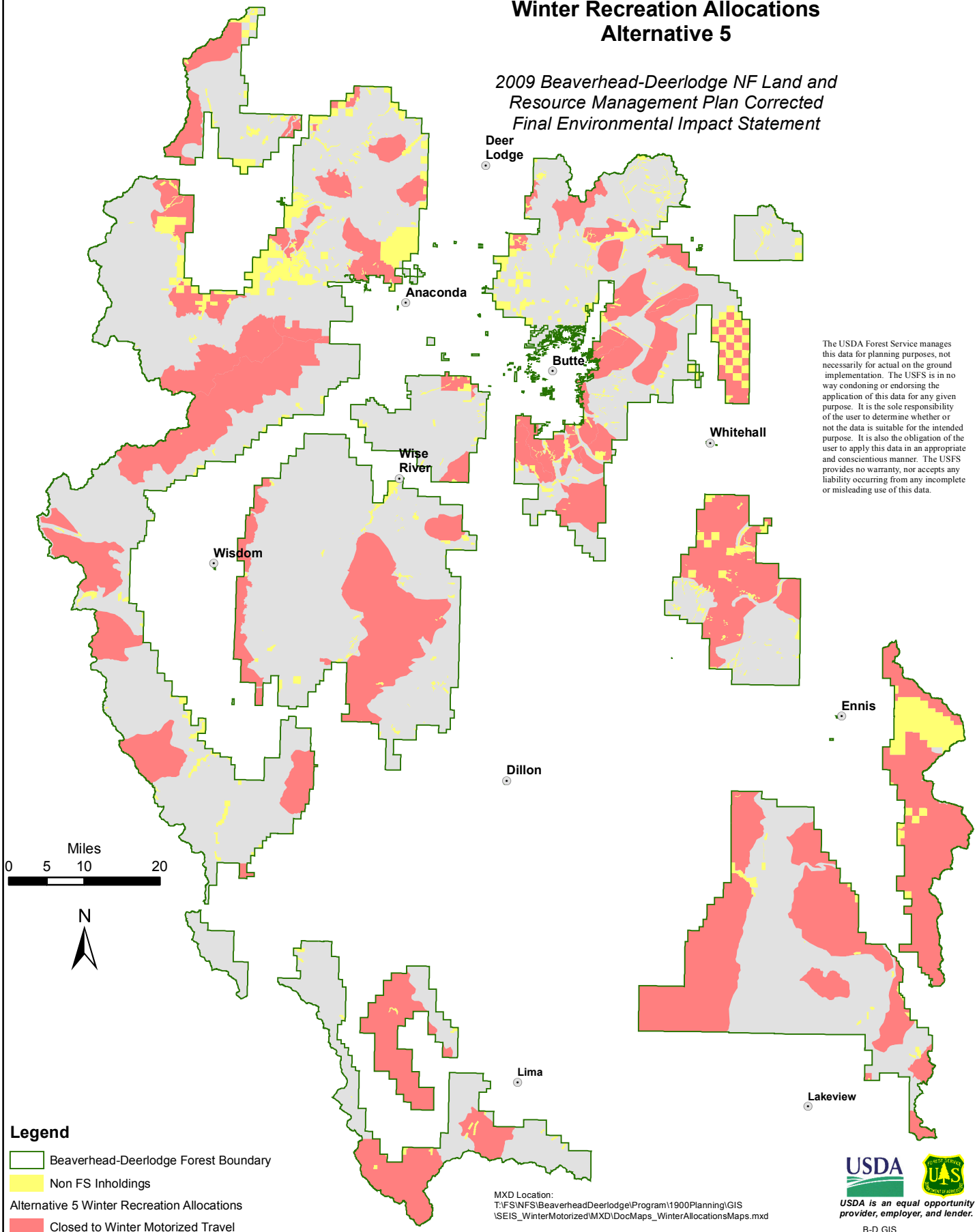
Winter Recreation Allocations
Alternative 5

2009 Beaverhead-Deerlodge NF Land and Resource Management Plan Corrected Final Environmental Impact Statement



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Legend

- Beaverhead-Deerlodge Forest Boundary
- Non FS Inholdings

Alternative 5 Winter Recreation Allocations

- Closed to Winter Motorized Travel
- Remain Open to Winter Motorized Travel

MXD Location:
T:\FS\NFS\BeaverheadDeerlodge\Program\1900Planning\GIS\SEIS_WinterMotorized\MXD\DocMaps_WinterAllocationsMaps.mxd

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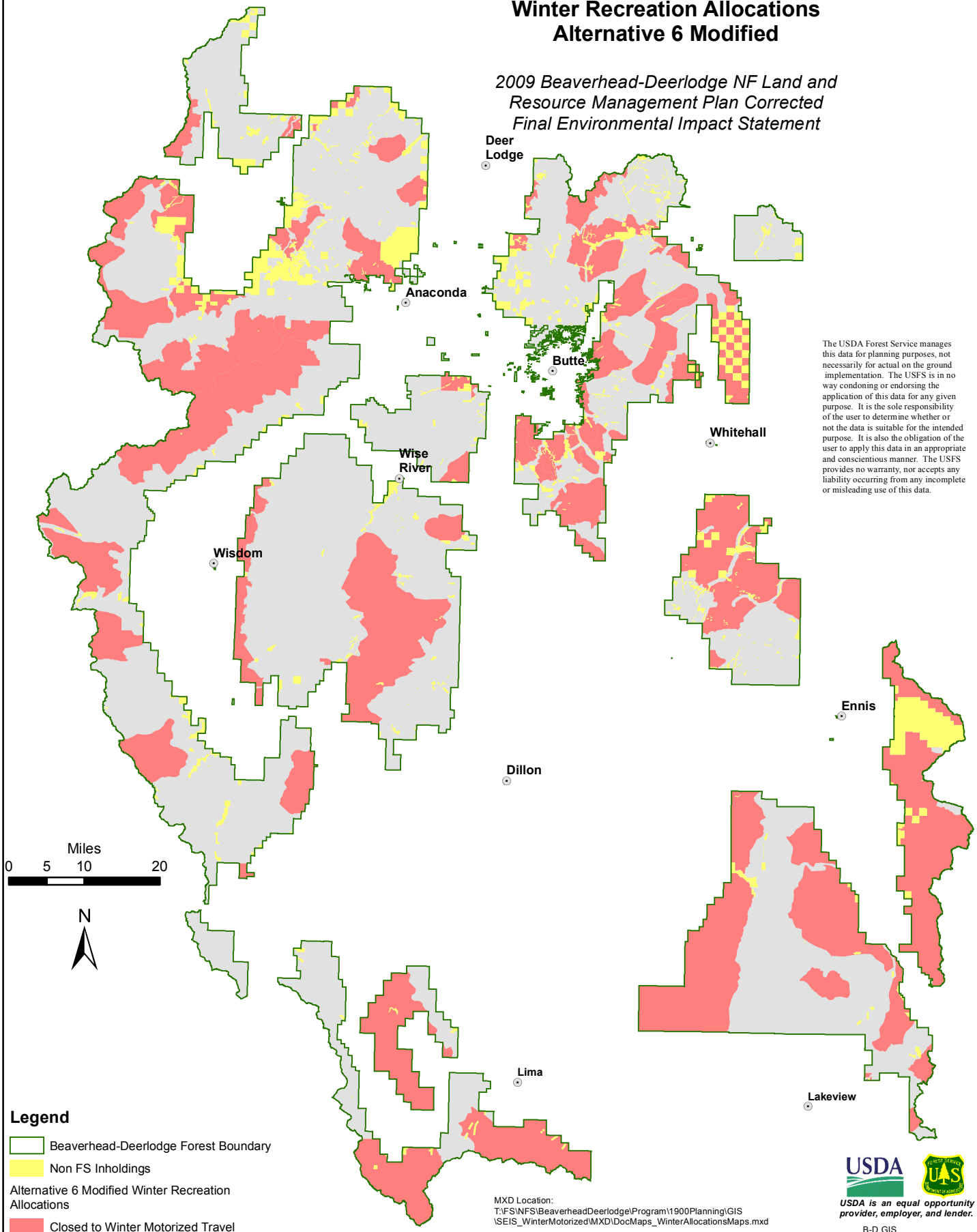
Winter Recreation Allocations
Alternative 6 Modified

2009 Beaverhead-Deerlodge NF Land and Resource Management Plan Corrected Final Environmental Impact Statement



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Legend

- Beaverhead-Deerlodge Forest Boundary
- Non FS Inholdings

Alternative 6 Modified Winter Recreation Allocations

- Closed to Winter Motorized Travel
- Remain Open to Winter Motorized Travel

MXD Location:
T:\FS\NFS\BeaverheadDeerlodge\Program\1900Planning\GIS\SEIS_WinterMotorized\MXD\DocMaps_WinterAllocationsMaps.mxd

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FEIS Alternative Descriptions by Landscape

This section provides quantitative data, by landscape and alternative, for winter recreation allocations analyzed in the 2009 FEIS.

Table 1: Winter Recreation Allocations – Big Hole Landscape

Alternative	Winter Motorized Status Acres (% of Big Hole Landscape)	
	Motorized	Non-motorized
Alternative 1	449,715 (85%)	81,644 (15%)
Alternative 2	363,680 (68%)	167,679 (32%)
Alternative 3	294,070 (55%)	237,289 (45%)
Alternative 4	451,433 (85%)	79,926 (15%)
Alternative 5	352,465 (66%)	178,894 (34%)
Alternative 6 Modified	353,772 (67%)	177,587 (33%)

Table 2: Winter Recreation Allocations – Boulder River Landscape

Alternative	Winter Motorized Status Acres (% of Boulder River Landscape)	
	Motorized	Non-motorized
Alternative 1	189,131 (93%)	14,160 (7%)
Alternative 2	189,132 (93%)	14,159 (7%)
Alternative 3	143,581 (71%)	59,710 (29%)
Alternative 4	189,132(93%)	14,159 (7%)
Alternative 5	145,079 (71%)	58,213 (29%)
Alternative 6 Modified	132,448 (65%)	70,844 (35%)

Table 3: Winter Recreation Allocations – Clark Fork-Flints Landscape

Alternative	**Winter Motorized Status Acres (**% of Clark Fork-Flints Landscape)	
	Motorized	**Non-motorized**
Alternative 1	341,280 (92%)	27,982 (8%)
Alternative 2	337,582 (91%)	31,680 (9%)
Alternative 3	265,423 (72%)	103,839 (28%)
Alternative 4	341,516 (92%)	27,746 (8%)
Alternative 5	289,242 (78%)	80,020 (22%)
Alternative 6 Modified	306,554 (83%)	62,708 (17%)

Table 4: Winter Recreation Allocations – Gravelly Landscape

Alternative	**Winter Motorized Status Acres** (% of Gravelly Landscape)	
	Motorized	**Non-motorized**
Alternative 1	377,946 (81%)	91,441 (19%)
Alternative 2	364,884 (78%)	104,502 (22%)
Alternative 3	141,192 (30%)	328,194 (70%)
Alternative 4	377,946 (81%)	91,441 (19%)
Alternative 5	234,821 (50%)	234,566 (50%)
Alternative 6 Modified	236,963 (50%)	232,423 (50%)

Table 5: Winter Recreation Allocations – Jefferson River Landscape

Alternative	**Winter Motorized Status Acres** (% of Jefferson River Landscape)	
	Motorized	**Non-motorized**
Alternative 1	190,574 (100%)	39 (0%)
Alternative 2	162,063 (85%)	28,551 (15%)
Alternative 3	98,329 (52%)	92,285 48%)
Alternative 4	190,611 (100%)	3 (0%)
Alternative 5	99,525 (52%)	91,088 (48%)
Alternative 6 Modified	90,190 (47%)	100,423 (53%)

Table 6: Winter Recreation Allocations – Lima Tendoy Landscape

Alternative	**Winter Motorized Status Acres** (% of Lima Tendoy Landscape)	
	Motorized	**Non-motorized**
Alternative 1	291,963 (79%)	75,561 (21%)
Alternative 2	291,963 (79%)	75,561 (21%)
Alternative 3	174,001 (47%)	193,523 (53%)
Alternative 4	291,963 (79%)	75,561 (21%)
Alternative 5	234,320 (64%)	133,204 (36%)
Alternative 6 Modified	202,401 (55%)	165,123 (45%)

Table 7: Winter Recreation Allocations – Madison Landscape

Alternative	**Winter Motorized Status Acres** (% of Madison Landscape)	
	Motorized	**Non-motorized**
Alternative 1	13,191 (11%)	109,803 (89%)
Alternative 2	3,685 (3%)	119,309 (97%)
Alternative 3	676 (1%)	122,318 (99%)
Alternative 4	13,198 (11%)	109,796 (89%)
Alternative 5	834 (1%)	122,161 (99%)
Alternative 6 Modified	2,730 (2%)	120,264 (98%)

Table 8: Winter Recreation Allocations – Pioneer Landscape

Alternative	**Winter Motorized Status Acres** (% of Pioneer Landscape)	
	Motorized	**Non-motorized**
Alternative 1	531,932 (93%)	42,193 (7%)
Alternative 2	455,341 (79%)	118,784 (21%)
Alternative 3	392,952 (68%)	181,173 (32%)
Alternative 4	531,932 (93%)	42,193 (7%)
Alternative 5	424,093 (74%)	150,032 (26%)
Alternative 6 Modified	424,492 (74%)	149,633 (26%)

Table 9: Winter Recreation Allocations – Tobacco Root Landscape

Alternative	**Winter Motorized Status Acres** (% of Tobacco Root Landscape)	
	Motorized	**Non-motorized**
Alternative 1	164,641 (95%)	9,334 (5%)
Alternative 2	164,647 (95%)	9,328 (5%)
Alternative 3	56,872 (33%)	117,104 (67%)
Alternative 4	164,647 (95%)	9,328 (5%)
Alternative 5	74,381 (43%)	99,595 (57%)
Alternative 6 Modified	83,851 (48%)	90,125 (52%)

Table 10: Winter Recreation Allocations – Upper Clark Fork Landscape

Alternative	**Winter Motorized Status Acres** (% of Upper Clark Fork Landscape)	
	Motorized	**Non-motorized**
Alternative 1	74,277 (89%)	9,041 (11%)
Alternative 2	72,033 (86%)	11,285 (14%)
Alternative 3	59,616 (72%)	23,701 (28%)
Alternative 4	74,328 (89%)	8,989 (11%)
Alternative 5	54,735 (66%)	28,582 (34%)
Alternative 6 Modified	55,542 (67%)	27,776 (33%)

Table 11: Winter Recreation Allocations – Upper Rock Creek Landscape

Alternative	**Winter Motorized Status Acres** (% of Upper Rock Creek Landscape)	
	Motorized	**Non-motorized**
Alternative 1	207,880 (76%)	65,339 (24%)
Alternative 2	208,056 (76%)	65,162 (24%)
Alternative 3	191,825 (70%)	81,393 (30%)
Alternative 4	208,056 (76%)	65,162 (24%)
Alternative 5	189,381 (69%)	83,837 (31%)
Alternative 6 Modified	133,571 (49%)	139,647 (51%)

Alternatives and Mitigation Measures Suggested During Public Comment Period

Numerous recommendations were submitted during the public comment for the draft SEIS. The recommendations and my evaluation follow.

- Eliminate snowmobiling in Sullivan Creek and around Barker Lake – This area, located in the Big Hole and Clark Fork Flint Landscapes, is proposed as open to OSVs under all Forest Plan alternatives. The analysis in this FSEIS did not identify substantial concerns with OSV use and other resources. Most of the reviewers recommending closure of this area did not provide supporting reasons for the recommendation. Several reviewers also requested leaving the area open to OSVs, again, without supporting reasons. However, several reviewers identifying themselves as non-motorized recreationists, specifically requested the area remain open so they could use OSVs to access the area and complete backcountry, non-motorized trips into the Anaconda-Pintler Wilderness.
- Open areas to snowmobiling where the activity now commonly occurs and close areas that receive little or no use – the FSEIS discloses potential impacts of OSV use on big game winter range and resources cited in the minimization criteria. Most of the reviewers recommending closure of little used areas did not provide supporting reasons for the recommendation. Other reviewers identified concerns about effects of little to no use of OSVs on wintering big game. These effects are disclosed in the FSEIS.
- Significantly decrease snowmobile use in big game winter ranges, including the Big Hole, Clark Fork Flint and Pioneer winter ranges. Alternative 6 Modified includes closure of additional winter range areas (as proposed by MFWP).
- Keep the high basins of the West Pioneers – including Bobcat Lakes, Lost Horn Mountain and Grouse Lakes quiet for future generations of outdoor enthusiasts – Lost Horn Mountain is not located in the West Pioneers or elsewhere on the BDNF. Opportunities for quiet winter recreation use are provided across the BDNF and the Pioneer Mountain landscape by alternatives analyzed in the 2009 FEIS and this FSEIS. The alternatives provide opportunities for quiet recreation use in the Pioneer Mountains, including areas recommended for wilderness in this landscape.
- Close the Bell Lake Trail to motorized use to alleviate conflict with backcountry skiers using the non-motorized basin above Bell Lake – numerous high peaks in the Tobacco Root Mountains were closed in the 2009 Forest Plan to OSV use, partially to provide non-motorized recreation opportunities. Bell Lake is located on the south end of this closed area and is relatively popular due to the presence of a backcountry yurt. The lower portion of the Bell Lake trail is open to OSV, the upper end is not. The backcountry ski outfitter holding the special use permit authorizing the yurt and commercial use indicated no real conflict occurred on the trail this past winter season.
- Amend the Forest Plan or issue a site specific decision to close Mt Jefferson to winter motorized use in order to minimize impacts to other uses - The area on the BDNF adjacent to the BLM Wilderness Study Area is closed to OSVs. Additional action are being taken to

reduce non-compliance with the closed area.

- Close the entire Granite Lake basin to OSVs - Under Alternative 6 Modified the Granite Lake basin is closed to OSVs. The road corridor to the lake remains open to OSVs. The backcountry ski outfitter holding the special use permit authorizing commercial use of the general area reports seeing high marking by OSVs in the closed portion of the basin in the past. This is the first report received by the agency of recent, illegal OSV use in the area. Now that we are aware of it, we have notified law enforcement. Effects to non-motorized recreation opportunities in the Granite Lake basin were reduced with the Forest Plan allocation as a non-motorized winter area.
- Designate only open routes in big game winter range - The existing range of alternatives are reasonable and prudent in light of the agency's overall multiple use mandate. Please refer to the big game winter range section for a discussion of potential effects of OSV use on big game winter range.
- Close spring grizzly bear habitat to OSVs starting April 15 – The USFWS found that the needs of the bear are adequately provided for with the current May 16 OSV closure. Spring snowmobiling areas and spring grizzly bear habitat are almost mutually exclusive in that the areas that would be suitable for spring snowmobiling (i.e. more snowpack) would not typically overlap with spring grizzly bear habitats (i.e. less snowpack in areas of early green-up). Such interaction would be limited due to the low number of denning bears and the abundant amount of denning habitat on the Forest. The various alternatives considered in this FSEIS already consider a wide array and arrangement of OSV closures. Based on the USFWS BO and analysis in this FSEIS, the May 16 OSV closure already provides adequate protection for emerging bears. In the conclusion the USFWS Biological Opinion states, "…the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears" (USFWS, 2013b).
- Close wolverine denning habitat to OSV use – The six alternatives evaluated in this FSEIS already consider a wide array and arrangement of OSV closures in suitable wolverine denning habitat (p. 158). The USFWS Proposed Rule acknowledged that while dispersed recreation may affect wolverines, significant effects to wolverines from winter recreation remain to be demonstrated scientifically. It also mentions that preliminary results from an ongoing study by Heinenmeyer et al. on the potential impacts of winter recreation on wolverines in central Idaho indicate that wolverines are present and reproducing in this area in spite of heavy recreational use, including a developed ski area; dispersed winter and summer recreation; and dispersed snowmobile use (USDI Fish and Wildlife Service, 2013d). While potential impacts are theorized, there is no evidence at this time that complete closure of all suitable denning habitat is warranted at this time.
- Align OSV use area boundaries with topographical features whenever possible - Because boundaries between motorized and non-motorized areas were selected for a variety of reasons, features used to define the boundary also vary. In many instances, topographical boundaries were used (watersheds, ridges, etc). In other instances, land line boundaries (such as the BDNF boundary) or roads were used. In the Mt. Jefferson area, a mid-slope

boundary was used as a compromise between motorized and non-motorized winter recreation opportunities. This area is marked by signs.

- Prohibit OSV use on lakes or reservoirs that provide municipal drinking water - None of the municipal watershed on the BDNF are closed to OSV use specifically to protect water quality because water quality is not being degraded below Montana state drinking water standards due to vehicle emissions.
- Implement a minimum snow depth – Because on-the-ground effects of OSV use during low snow conditions are so limited on the BDNF, this mitigation measure was not deemed necessary this time.
- Formally close the area surrounding the Chief Joseph cross-country ski trails to OSV use – Closures of areas to OSV use is not the only solution to avoiding conflict between motorized and non-motorized forms of winter recreation. Current efforts to avoid potential conflicts around the Chief Joseph cross-country ski trails are an example where cooperation between user groups has precluded conflict.
- Allow fat bicycles on groomed snowmobile trails – With the exception of designated wilderness and recommended wilderness areas, wheeled mechanized (but non-motorized) vehicles, including fat tire bicycles designed for over snow travel are allowed on the BDNF. Fat tire bicycles are not an OSV.
- To facilitate a fully informed decision about the impacts of each action alternative, analyze an alternative that designates no areas or routes to OSV use –The existing range of alternatives are reasonable and prudent in light of the agency's multiple use mandate.
- Limit OSV use to designated routes only on the BDNF - The existing range of alternatives are reasonable and prudent considering the agency's multiple use mandate and considering the minimal impacts from the long history of OSV use on the BDNF.

SEIS Analysis Methodology

The SEIS evaluates and considers data regarding the effects of OSV use on big game and resources subject to the minimization criteria. The methodology for our analysis began with literature review to determine potential effects of OSV on resources, including wildlife. Published, peer-reviewed scientific literature is acknowledged and incorporated into the analysis.

We considered the existing condition of winter recreation including winter use information from the National Visitor Use Monitoring (NVUM) survey process and winter motorized use patterns on the BDNF identified by Forest recreation specialists, representing their repeated observations of on-the-ground use for numerous years. These use patterns were mapped. We gathered wildlife habitat and population data from the Montana Fish, Wildlife and Parks (MFWP). We considered and included monitoring information of resources and knowledge of conflicts. We then undertook a review of on-the-ground effects of OSV use, including obtaining information from each MFWP local wildlife biologist. And, we asked for specific information from the public. OSV use has been a popular winter recreation activity on the BDNF since the

mid-1960's such that on-the-ground impacts, or lack thereof, would be apparent and known.

Every time agency resource specialists are physically on-the-ground, they monitor resources through visual observations. Concerning effects to soil, water and vegetative resources from OSV use on the BDNF, ten agency resource specialists were asked to locate where OSV use, especially during low snow conditions, detrimentally affect soil, watershed and vegetation resources. They were unable to identify any damage to the resources in any areas after numerous years of observations. These specialists have a combined total exceeding 200 years of experience observing on-the-ground conditions on the BDNF.

The big game section in the Final SEIS was updated to incorporate landscape-specific comments from MFWP, with each MFWP area biologist interviewed. The result was that there are only a few cases where MFWP biologists are seeing any harassment/disruption of big game habitats (elk in the Boulder Landscape and moose in the Boulder and Gravelly Landscapes) from cross-country OSV travel (Pers. com. MFWP 2016). These specific areas of concern are addressed in the SEIS. There were no instances on any landscape or site specific area where MFWP biologists identified harassment or significant disruption of mule deer, mountain goat or bighorn sheep habitat/populations as an issue from OSV travel (Pers. com. MFWP 2016).

The SEIS provides specific analysis looking at each landscape and site-specific area where issues were raised. This included taking into account, within all areas open to OSV use, all effects on resources of OSV use of routes (groomed or ungroomed) in these open areas. As an example, effects to winter range areas open to OSV travel included impacts of OSV routes in those areas. The on-the-ground knowledge of local MFWP biologists regarding effects on winter range of OSV use in open areas includes the effects of OSV use of routes within these open areas. Maps are provided of existing snowmobile routes (Appendix H). In areas open to OSV use snowmobiles are not restricted to a particular travel way or route and, as such, closing a route would not discontinue OSV use in the area. Our methodology looked at all effects thereby encompassing the effects of the routes.

Also, incorporated in the SEIS is analysis of the three designated OSV routes on the Forest, which occur in closed areas. The three designated OSV routes are:

- Snowmobile use through the Electric Peak area (Trail 7065) near Thunderbolt Creek and Cottonwood Lake (Jefferson County, Montana).
- Snowmobile use through the non-motorized area on the Road #056 corridor in the vicinity of Antelope Basin (Beaverhead County, Montana), and
- Snowmobile use on the road to Antone Cabin in the southwest portion of the Snowcrest Mountains (Beaverhead County, Montana).

The November, 2012 FSEIS specifically analyzed the effects to big game winter range and the effects relevant to applying the minimization criteria to these three designated OSV routes which occur in the Boulder River and Gravelly Landscapes. In summary, the analysis, as discussed in the 2012 Record of Decision, specifically found:

Electric Peak (Trail 7065)

1. The Revised Forest Plan FEIS finds impacts from snowmobile use on the BDNF to soil and vegetation are benign since these resources are buffered by snow during winter snowmobile use and the tracks vanish with snow melt (corrected FEIS, pg. 289). This is an existing trail that is devoid of vegetation and is appropriately maintained which minimizes damage to soil, water, and other resources. Snowmobile use of the Electric Peak route also occurs when soil and vegetation are buffered by snow. There is no evidence snowmobile use has damaged soil or vegetation on, or along, this route.
2. This route is not located in big game winter range or in an area where mountain goats are likely to habituate. As disclosed in the 2012 FSEIS, there are no anticipated impacts to other species or their habitats. The Forest Plan decision closed 5,900 acres to winter motorized recreation in the Electric Peak Management Area and reduced snowmobile opportunities by 57,000 acres (from the no action alternative) in the Boulder River Landscape.
3. The 2009 Forest Plan decision minimized conflicts between off-road vehicle use and other recreational uses by confining traffic to this route. There are no known conflicts, accidents, or injuries associated with winter use on Trail #7065.
4. This trail is not located in an officially designated Wilderness Area or primitive area.

Antelope Basin (Road 056)

1. The Revised Forest Plan FEIS finds impacts from snowmobile use on the BDNF to soil and vegetation are benign since these resources are buffered by snow during winter snowmobile use and the tracks vanish with snow melt (corrected FEIS, pg. 289). This is an existing road that is devoid of vegetation and is appropriately maintained which minimizes damage to soil, water, and other resources. Snowmobile use along the Road #056 corridor also occurs when soil and vegetation are buffered by snow. In addition, the route is a system road open to highway vehicles all year (although it becomes impassable due to snow during the winter). There is no evidence snowmobile use has damaged soil or vegetation on, or along, this route.
2. This route is not located in big game winter range or in an area where mountain goats are likely to habituate. As disclosed in the 2012 FSEIS, there are no anticipated impacts to other species or their habitats. Snowmobile use along this road corridor in the Antelope Basin Management Area is in the Gravelly landscape where winter motorized allocations were reduced by over 143,000 acres in the 2009 Forest Plan decision.
3. The 2009 Forest Plan decision minimized conflicts between off-road vehicle use and other recreational uses by confining traffic to this route. There are no known conflicts, accidents, or injuries associated with winter use on Road #056.
4. This road is not located in an officially designated Wilderness Area or primitive area.

Antone Cabin (Road 325)

1. The Revised Forest Plan FEIS finds impacts from snowmobile use on the BDNF to soil and vegetation are benign since these resources are buffered by snow during winter snowmobile use and the tracks vanish with snow melt (Revised Forest Plan FEIS, pg. 289). This is an existing road that is devoid of vegetation and is appropriately maintained which minimizes damage to soil, water, and other resources. Snowmobile use on the road to Antone Cabin also occurs when soil and vegetation are buffered by snow. In addition, the route is a system road open to highway vehicles July 1 through March 31 (although it becomes impassable due to snow during the winter). There is no evidence snowmobile use has damaged soil or vegetation on, or along, this route.
2. This route is not located in big game winter. As disclosed in the 2012 FSEIS, there are no anticipated impacts to other species or their habitats. Snowmobile use along this road corridor in the Snowcrest Management Area is in the Gravelly landscape where winter motorized allocations were reduced by over 143,000 acres in the 2009 Forest Plan decision.
3. The 2009 Forest Plan decision minimized conflicts between off-road vehicle use and other recreational uses by confining traffic to this route. There are no known conflicts, accidents, or injuries associated with winter use on Road #056.
4. This road is not located in an officially designated Wilderness Area or primitive area, but is surrounded by a Recommended Wilderness designation.

Existing Condition of Winter Recreation

The 2009 FEIS describes winter recreation opportunities on the BDNF (pgs. 342-346): Deep snow, particularly in the upper elevations, with over 100 usable days per year, moderate terrain, cool temperatures and relatively undeveloped settings make the Forest an attractive area for winter activities. Winter uses of all kinds have become more popular. Motorized recreation has grown in users, with a 200% increase in snowmobile registration since 2000 in Montana (SCORP, 2014). Although the majority of the forest is open to motorized use in the winter, approximately half of the motorized settings are generally not used by snowmobiles due to natural features such as dense timber, large rocks, cliffs, steep terrain or inadequate snow depths. Technologic advances in snowmobile design have led to snowmobiles penetrating farther into backcountry areas. Changes to snowmobile opportunities in Yellowstone Park may result in increased snowmobile use on adjacent NFS lands (2009 FEIS pg. 510).

There are five areas managed for cross-country skiing, and many more parts of the forest are available to and used by skiers. The number of visits by cross-country skiers is increasing in some areas, particularly the Big Hole, where snow conditions are often excellent and a ski trail system at Chief Joseph Pass has been developed. Since most skiers are limited to about 10 miles per day, much of the forest's winter backcountry is also not visited by skiers. Cross-country skiing, for the most part, occurs within 10 miles of roads and parking areas. A few skiers take multiple day trips and winter camp.

Two Winter Sports Areas (ski resorts) are also located on the forest.

During the over-snow season, most Forest seasonal roads are closed due to snow and are available for use by snowmobiles unless other restrictions apply. Snowmobiling, snow-shoeing and dog sledding, as well as back-country and cross-country skiing are popular winter activities. Winter parking areas, snowmobile grooming and groomed cross-country ski areas are located on the Forest. Hiking and off-highway vehicle use is also a popular winter activity on lower elevations where snow accumulations are sporadic.

Motorized recreation has grown in users, with a 200% increase in snowmobile registration since 2000 in Montana (SCORP, 2014). It's estimated that visitation will increase over the life of the plan (USDA 2001). Recreation activities with growth projected to be substantially greater than projected population growth by 2020 include sightseeing, viewing historic places, wildlife viewing, wildlife photography, motor-boating, and cross-country skiing. Of these, sightseeing, viewing, and photography are very common, with well over half the population participating in one or of these pursuits. Cross-country skiing has considerably less participation, including about 4.5% of the population. Recreation activities with growth projected to be about the same as projected population growths by 2020 include canoeing, walking, fishing, and developed and dispersed camping. Recreation activities with substantially less growth than projected population increases by 2020 include downhill skiing, rafting/floating, snowmobiling, horseback riding, backpacking, off-road driving, hiking, primitive camping, hunting and rock climbing.

Winter Use Information

The National Visitor Use Monitoring (NVUM) survey process was designed to better understand recreation use occurring on NFS lands. Starting in 2000, the BDNF has conducted these surveys to assess recreation use on the Forest. NVUM results are used in determining the amount of visitation, what types of activities visitors engaged in and their level of satisfaction. Examples of information provided in the BDNF reports include: 1) total number of visits; 2) participation rates; and 3) user satisfaction.

The NVUM surveys provide the best data we have for the activities surveyed. The most common activities visitors come to the BDNF for are hunting, fishing, hiking, and walking. A large percentage of visitors prefer to relax, view the scenery and wildlife and natural features during their hiking, walking, and hunting excursions. Many also drive for pleasure while they are here for other reasons. Snowmobiling use remains relatively low, as does other winter activities. A majority of Forest visitors are local and recreate within two hours of their home. This pattern is typical when compared to other forests.

The first NVUM Project on the BDNF was conducted from January 1 through December 31, 2000. The top recreation activities were viewing wildlife/nature, hunting, fishing, general relaxation and driving for pleasure. Snowmobile travel accounted for 3% participation, while cross-country skiing and snow shoeing accounted for 4%. Satisfaction from all visitors for condition of the natural environment, feeling of safety and attractiveness of the forest landscape was rated either good or very good.

Caution should be used when trying to compare the first round of NVUM data with future years

as significant improvements were made in the sampling survey to 1) improve accuracy and consistency of the definitions, and 2) the scope and range of locations and times selected for data collection were modified to ensure that all types of recreation visitation across the Forest and throughout the sample year were represented. Differences cannot be interpreted as trend.

The BDNF next participated in the NVUM program from October 2004 through September 2005. Visitors rated viewing natural features, hiking or walking, driving for pleasure, relaxing and hunting as the top activities. And 1.6% of the respondents participated in snowmobiling, while 5.4% participated in cross-country skiing. Overall satisfaction remained relatively high for items such as condition of the environment, feeling of safety and scenery. This round of NVUM gathered information on visitor's perception of how crowded the area felt to them; only 0.3% of undeveloped areas were rated as overcrowded.

NVUM surveys occurred again during fiscal year 2010. Hunting, fishing, hiking/walking, viewing natural features, viewing wildlife and relaxing were the primary activities identified. Snowmobiling participation was 1.7% while cross country skiing was 12.2%. Over 70% of the visits were very satisfied with their recreation experience. Visitors rated overcrowding at less than 5% of the undeveloped areas.

Round 4 of NVUM for the Forest began October 2014 and ran through September 2015. Results of those surveys are not yet available. The results of that study are currently in the process of being compiled by National Visitor Use Monitoring program personnel, and we anticipate that the results will be uploaded into the NVUM results database over the coming months.

As a reminder, the NVUM provides a 'snapshot' of annual National Forest visitation, and due to certain limitations, its creators caution against its use to ascertain trends. The NVUM is conducted once every 5 years, and provides a standardized estimate of visitation; however, it is subject to the effects of changing field conditions that may have affected visitation, respondent bias, and surveying and data collection errors. Therefore, the NVUM is one of several social and economic indicators used to assess recreation use. More information about the NVUM can be found at: http://www.fs.fed.us/recreation/programs/nvum.

Winter Motorized Use Patterns

Snowmobile use patterns on the BDNF were identified by Forest recreation specialists, representing their repeated observations of on-the-ground use for numerous years. These specialist's field observations are mapped in Figure 9 and Figure 10 on the next pages. While some level of recreation activity occurs almost everywhere on the forest, the majority of winter use is concentrated around developed sites and along roads, where many roads are managed as snowmobile or ski routes.

There is a difference between the acres open to OSVs and the acres useable by OSVs. The acres not useable are those with physical constraints such as rivers, streams, steep rocky cliffs or dense forested areas that are so heavily timbered that a snowmobile cannot maneuver through them. It also includes elevation areas where insufficient snow accumulates for use by OSVs. Other areas might not be suitable for OSV use due to the downfall or snags in areas burned in wildfires.

Areas of regular OSV use are found in the Big Hole, Pioneer and Gravelly landscapes and certain areas near roaded access in the Tobacco Root, Boulder River, Clark Fork Flint and Upper Rock Creek landscapes.

Estimates of regular, intermittent and seldom to none levels of use for both pre and post 2010 Forest Plan implementation are shown in Table 12 and Table 13.

Table 12: Percent OSV Use by Landscape Pre-2010 ROD

Landscape	Regular Use	Intermittent Use	Seldom to None	Closed to OSV
Big Hole	43 %	30 %	11 %	15 %
Boulder River	8%	3%	82 %	7 %
Clark Fork - Flints	6 %	20 %	66 %	8 %
Gravelly	12 %	2 %	66 %	19 %
Jefferson	0 %	13 %	87 %	0 %
Lima Tendoy	8 %	2 %	70 %	21 %
Madison	0 %	0 %	11 %	89 %
Pioneer	49 %	21 %	22 %	7 %
Tobacco Root	2 %	20 %	73 %	5 %
Upper Clark Fork	2 %	1 %	87 %	11 %
Upper Rock Creek	7 %	9 %	60 %	24 %
Forest Total	20 %	14 %	51 %	16 %

Table 13: Percent OSV Use by Landscape Post-2010 ROD Implementation

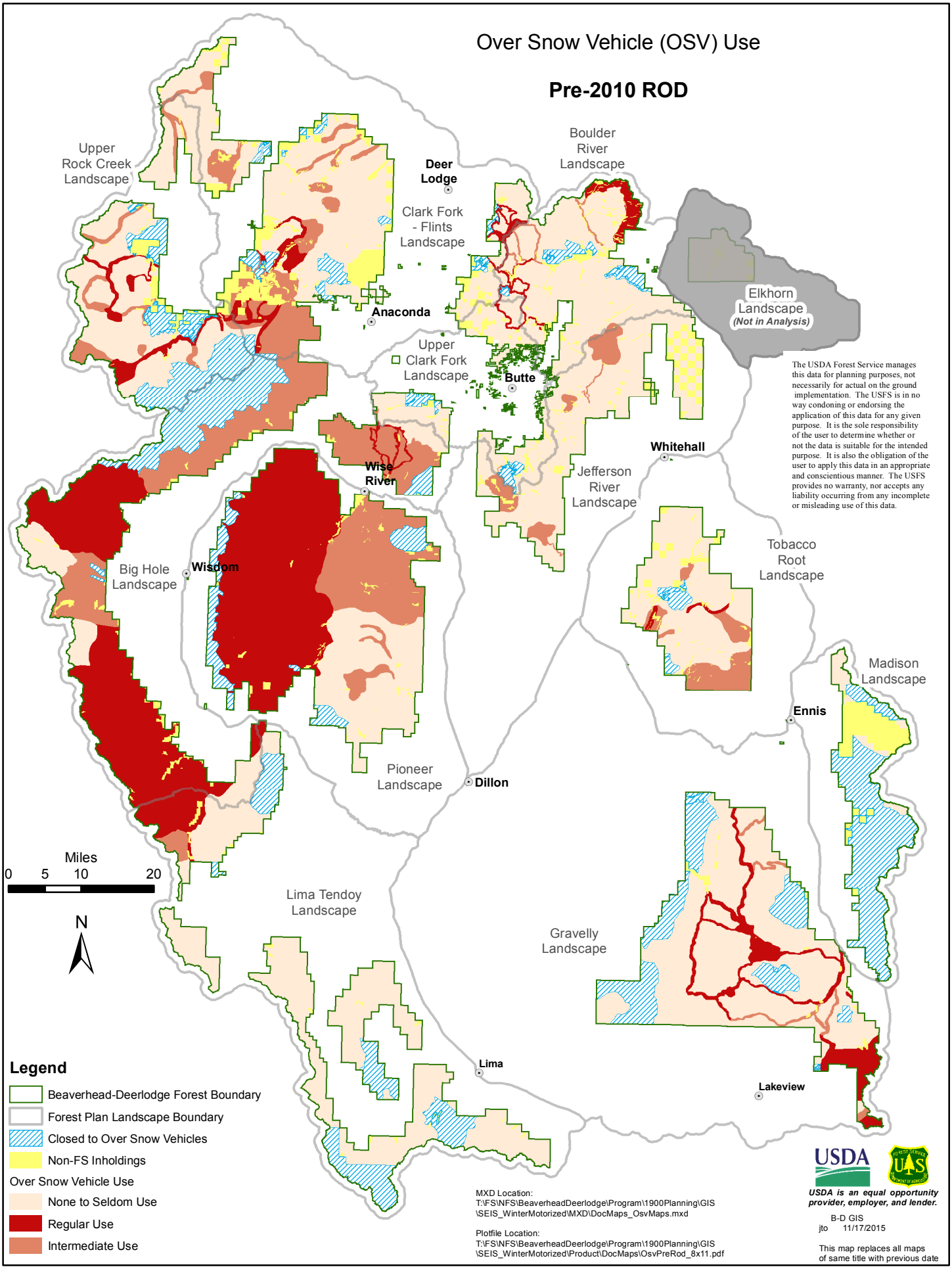
Landscape	Regular Use	Intermittent Use	Seldom to None	Closed to OSV
Big Hole	34 %	26 %	6 %	33 %
Boulder River	9 %	2 %	55 %	35 %
Clark Fork - Flints	6 %	18 %	59 %	17 %
Gravelly	10 %	2 %	39 %	50 %
Jefferson	0 %	8 %	39 %	50 %
Lima Tendoy	8 %	2 %	45 %	45 %
Madison	0 %	0 %	2 %	98 %
Pioneer	48 %	14 %	12 %	26 %
Tobacco Root	2 %	19 %	27 %	52 %
Upper Clark Fork	2 %	1 %	64 %	33 %
Upper Rock Creek	8 %	8 %	33 %	51 %
Forest Total	18 %	11 %	31 %	40%

When snow depth is sufficient, usually January through April, OSV activities are concentrated on weekends, with very little activity seen Monday through Friday. Winter activities vary each season with the snow depth and condition of the snow. OSV activities during December and May are sparse due to lack of snow and warm temperatures, which can lead to serious mechanical problems for OSVs and safety concerns for riders. The exposed road surfaces and hazards (boulders, stumps and vegetation) keep any type of OSV activity to a minimum during these early winter and spring times. OSV use in low snow conditions is rare. OSVs occasionally cross a bare area to reach a snow covered area; the distance is less than 100 yards and frequently on a road surface. Grooming of snowmobile routes usually does not occur until after there is ample snow (J.Ericson, pers. comm. 2015).

Grooming is a necessary maintenance practice because mounds and dips known as moguls are caused by passing snowmobiles, similar to the formation of “washboards” on gravel roads (IASA, 2005). Groomed trails on the BDNF are generally located on Forest Service roads and trails, and the width that the snowmobile trails are groomed is dictated by the development level and widths of the underlying roads. Winter trails are periodically maintained during the non-snow season in order to meet management objectives and standards, which include clearing widths consistent appropriate for winter grooming. The BDNF administers snowmobile trail grooming through agreements with local snowmobile clubs, which obtain grant funding through the Montana Snowmobile Program. The Montana Snowmobile Program supports

Over Snow Vehicle (OSV) Use

Pre-2010 ROD



The USDA Forest Service manages this data for planning purposes, not necessarily for actual on the ground implementation. The USFS is in no way condoning or endorsing the application of this data for any given purpose. It is the sole responsibility of the user to determine whether or not the data is suitable for the intended purpose. It is also the obligation of the user to apply this data in an appropriate and conscientious manner. The USFS provides no warranty, nor accepts any liability occurring from any incomplete or misleading use of this data.

MXD Location:
T:\FS\NFS\BeaverheadDeerlodge\Program\1900Planning\GIS\SEIS_WinterMotorized\MXD\DocMaps_OsvMaps.mxd

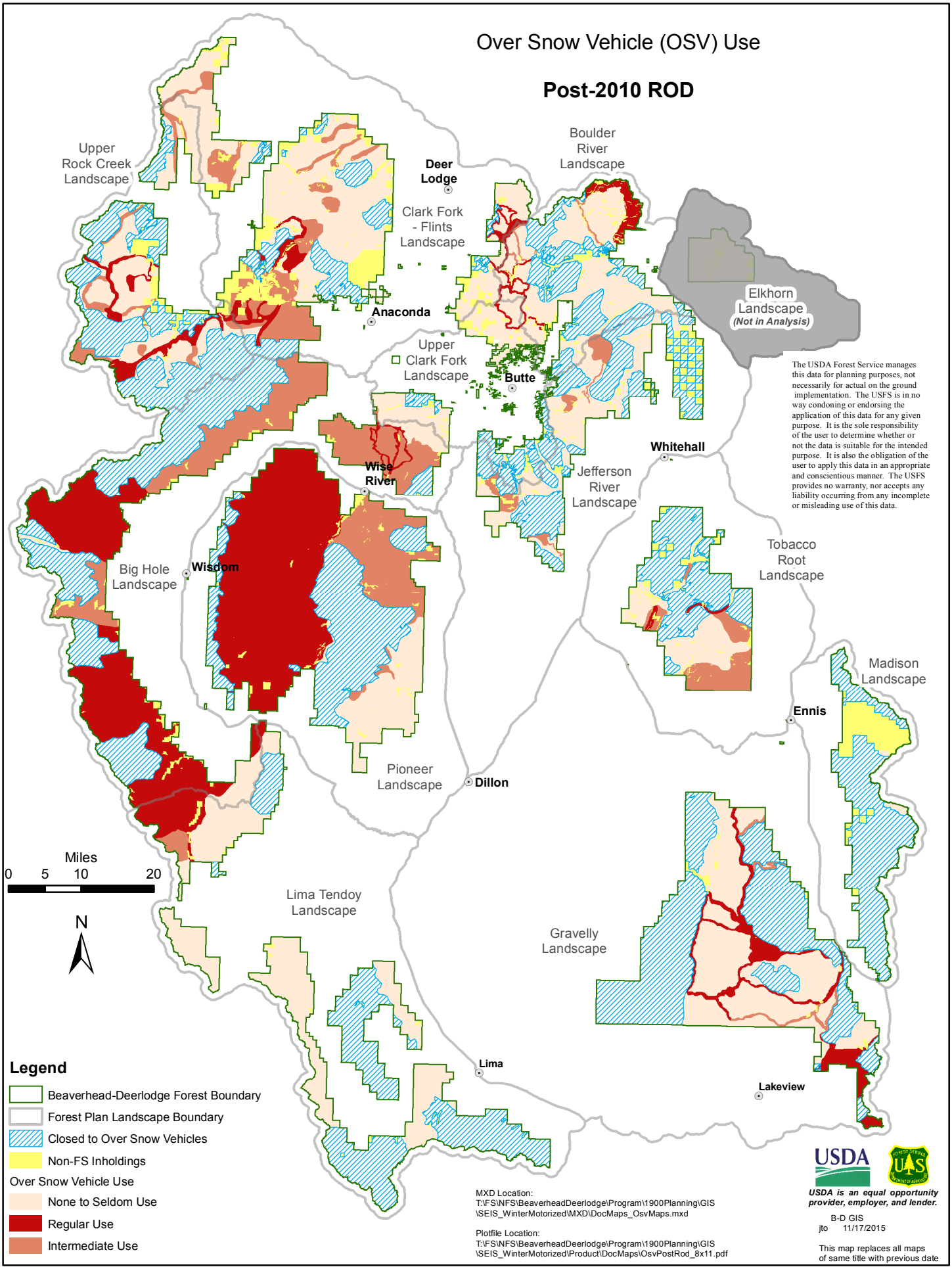
Plotfile Location:
T:\FS\NFS\BeaverheadDeerlodge\Program\1900Planning\GIS\SEIS_WinterMotorized\Product\DocMaps\OsvPreRod_8x11.pdf

B-D GIS
jto 11/17/2015

This map replaces all maps of same title with previous date

Over Snow Vehicle (OSV) Use

Post-2010 ROD



The USDA Forest Service manages this data for planning purposes, not necessarily for actual on the ground implementation. The USFS is in no way condoning or endorsing the application of this data for any given purpose. It is the sole responsibility of the user to determine whether or not the data is suitable for the intended purpose. It is also the obligation of the user to apply this data in an appropriate and conscientious manner. The USFS provides no warranty, nor accepts any liability occurring from any incomplete or misleading use of this data.

MXD Location:
T:\FS\NFS\BeaverheadDeerlodge\Program\1900Planning\GIS\SEIS_WinterMotorized\MXD\DocMaps_OsvMaps.mxd

Plotfile Location:
T:\FS\NFS\BeaverheadDeerlodge\Program\1900Planning\GIS\SEIS_WinterMotorized\Product\DocMaps\OsvPostRod_8x11.pdf

B-D GIS
jto 11/17/2015

This map replaces all maps of same title with previous date

snowmobile trail grooming and the purchase and repair of grooming-related equipment through state gas taxes and snowmobile registration fees.

Big Hole Landscape

The 2009 Forest Plan (pg. 65) describes the Big Hole Landscape as providing a scenic backdrop of rugged mountains above the Big Hole Valley, where traditional ranching contributes a pastoral element to the overall character of the Landscape. The consistently high snowfall, terrain and winter climate make this a good place for outdoor winter recreation. Plowed parking lots provide access to popular snowmobiling, backcountry skiing and other winter uses. Chief Joseph cross-country ski area provides groomed ski trails. Trail Creek is a popular OSV destination.

Boulder River Landscape

The Landscape includes the upper Boulder River watershed from the Continental Divide to the town of Boulder (Forest Plan pg. 89). The majority of this Landscape is heavily roaded. Residents of Butte, Boulder, Deer Lodge and Helena consider this area part of their backyard. The area receives heavy recreation use in winter, but the majority of this use is associated with off-highway vehicles (OHVs), not snowmobiles. There is some OSV access/use that occurs from the Helena National Forest and some groomed snowmobile routes nearer to Deer Lodge.

Clark Fork Flint Landscape

The rocky peaks of the Flint Creek and Anaconda Mountain Ranges are the dominant features of this Landscape, towering above the broad Deer Lodge and Flint Creek Valleys (Forest Plan pg. 109). Recreation use varies from the developed use around Georgetown Lake and Discovery Basin Ski Area to the challenging backcountry uses of the Anaconda-Pintler Wilderness. The Flint Range offers a mix of motorized and non-motorized winter use. It is the backyard of the communities of Anaconda, Deer Lodge, Drummond, Fairmont, Galen, Gold Creek, Hall, Maxville, Opportunity, Philipsburg, Warm Springs and West Valley. There is a system of groomed snowmobile routes in the Flints and some OSV play areas in adjacent meadow areas.

Gravelly Landscape

The Gravelly Landscape includes the Gravelly, Snowcrest and Greenhorn mountains, the Ruby River and a small portion of the Centennial Mountains. The Gravelly Range plays an important role in the Greater Yellowstone Area, providing semi-primitive backcountry experiences for a range of users (Forest Plan pg. 127). The south end of the Gravelly Range, closest to Yellowstone Park, provides an extension to the OSV opportunities found in the West Yellowstone and Island Park areas. The south end has more predictable snow and the terrain is more inviting for off-route experiences.

In the southeast corner of the Gravelly Landscape and surrounding area, winter recreation use is primarily associated with the communities of West Yellowstone, Montana and Island Park, Idaho. As a result, OSV use occurs in the Raynolds Pass, Red Rock Pass, Centennial Valley and Antelope Basin area. On the west side of the Gravelly Mountains, winter motorized use is found from Axolotl south to the Centennial Mountains. The core use areas are the road corridors, and

the groomed routes on the Gravelly Range, east of Red Rocks Pass and the headwaters of Hell Roaring Creek.

Jefferson River Landscape

This Landscape includes parts of three mountain ranges which drain from the Continental Divide into the head of the Jefferson River (Forest Plan pg. 165). It is drier than others on the Forest because of the granitic soils and rain shadow effect of the Continental Divide. Motorized routes near Butte are heavily used in winter by OHVs. There is some OSV use in the Whitetail Reservoir area. While the area is popular with motorized uses, terrain and snow levels limit OSV use.

Lima Tendoy Landscape

The Lima Tendoy Landscape is located in the southwest corner of Montana and BLM lands are a large component of the overall Landscape. Along the southern edge grasslands transition directly to rocky peaks, without the usual band of conifers between these two cover types (Forest Plan pg. 181). Recreation use is usually most concentrated during hunting season. Little cross-country skiing and snowshoeing occurs on this Landscape. Winter motorized use is generally limited to winter trapping access.

Madison Landscape

The Madison Landscape includes two parcels of land along the west-facing slope of the Madison Range from Bear Trap Canyon on the north to Quake Lake on the south (Forest Plan pg. 181). The Madison Range is part of the Greater Yellowstone Ecosystem. Nearly all the land in this Landscape comprises the Lee Metcalf Wilderness and is managed to provide challenging primitive recreation opportunities. Recreation use is less influenced by proximity to Yellowstone Park than its own wilderness character and accessibility. Winter use is light because roads to trailheads are closed by snow. Bear Creek is one of the more accessible areas where cross-country skiing is popular. Historically, motorized access on National Forest is confined to a few road corridors where there is little to no OSV use.

Pioneer Landscape

The Pioneer Landscape contains an island mountain range dominated by rocky peaks. The communities of Dillon, Wisdom, Wise River, Dewey, Argenta, Glen, Jackson, Polaris, Melrose and Divide are located along the highways which surround the landscape. Communities are tied to traditional activities as well as recreational opportunities provided by the landscape. In winter the Pioneer Mountain Scenic Byway becomes the Wise River National Recreation Trail, popular with snowmobiling. Maverick Mountain Ski resort and Elkhorn Hot Springs with nearby cross country and snowmobiling routes offer winter recreation opportunities.

Tobacco Root Landscape

The Tobacco Root Mountains are an island of high peaks, snowy basins, alpine lakes, accessible forested slopes and open rolling foothills (Forest Plan pg. 221). The south half of the Tobacco Root Landscape lies within the Greater Yellowstone Ecosystem, but is far enough from

Yellowstone Park to be outside its sphere of influence. The Tobacco Root Landscape serves as the back yard for communities like Bozeman, Sheridan, Ennis, McAllister, Pony and Mammoth. Local use is common. In winter, snow depths and plowed road access to snow often limit OSV and cross-country ski opportunities. Motorized winter recreation use is localized traffic associated with open routes out of Potosi, Pony, Willow Creek, Mill Creek and Mill Gulch.

Reviewers of the 2015 Draft SEIS noted increased use by snow bikes on the Bell Lake Trail. This use is only allowed on the lower portion of the trail. The upper portion of this trail is closed to OSVs, including snow bikes. The outfitter operating a yurt for backcountry skiers near Bell Lake has indicated occasional conflict with OSVs illegally using the trail but not to the point it is detrimentally affecting his operations. Education and law enforcement activities will continue to manage recreation use in the area.

Upper Clark Fork Landscape

The Upper Clark Fork Landscape is the smallest yet the level of development and recreation use is high (Forest Plan pg. 241). Most use is motorized, with exceptions such as Molten Reservoir Cross-Country Ski Trails, Thompson Park, and the Continental Divide National Scenic Trail.

Upper Rock Creek Landscape

The Upper Rock Creek Landscape is characterized by high rocky peaks in the south and more rounded and forested yet steep mountain summits along its western edge (Forest Plan pg. 251). It provides large areas of backcountry, including the Sapphire Wilderness Study Area and a portion of the Anaconda-Pintler Wilderness. Many people place recreation and aesthetics as the highest value of this Landscape.

Forestwide Existing Condition – Social/Economic

The University of Montana Bureau of Business and Economic Research (BBER) conducted ongoing studies on the social and economic impacts of snowmobiling in Montana. Their most recent reports (Sylvester, 2014) concluded that snowmobiling is a significant sport in the state, with significant economic impacts. BBER's most recent surveys suggest that about 8% of the state's households include snowmobile recreationists. Nearly 57,000 snowmobiles are registered in Montana. Residents used these snowmobiles about 1.2 million days during the 2013-2014 season. Nonresidents added another 97,000 days.

BBER's estimates suggest that nonresident snowmobilers spend about $147 per activity day, including food, lodging, and often, snowmobile rental costs. Nonresidents accounted for spending an aggregate of nearly $14.3 million in Montana. That spending supports about 200 winter jobs. On average, residents spend much less per activity day than non-residents ($56); most of their out-of-pocket costs are for gasoline. Resident yearly spending is about $96.3 million, with over half spent on gasoline for snowmobiles and transportation. Resident and nonresident snowmobilers buy about 4.3 million gallons of gasoline per season. With a base tax of $0.27 per gallon, snowmobilers in Montana generate over $1.2 million in revenue for the state highway trust fund.

The 2009 FEIS included analysis of economic and social values (2009 FEIS pg. 187). The survey results and subsequent reports indicate economic impacts were influenced most by an overnight stay and the distance between residences and recreation sites than by type of activity. The survey also found visitors, whose primary activity requires a vehicle, whether it is a car, snowmobile or OHV, spend greater amounts on gas and oil (2009 FEIS pg. 199).

Existing Condition of Big Game Winter Range

The analysis for big game will be discussed in three sections: general big game, bighorn sheep, and mountain goat. General big game is a consolidation of effects to elk, mule deer, white-tailed deer, moose, and antelope. These are species that are common across the forest and this grouping is consistent with how the state grouped their big game species when defining winter range crucial areas across the state (MFWP 2015). Bighorn sheep and mountain goats are discussed individually, as there are discrete populations widely scattered across the BDNF and effects to these species can be evaluated more specifically on a species by species basis.

Definition of Big Game Winter Range

According to MFWP, big game winter range represents the area where deer, elk, antelope, bighorn sheep, moose, and mountain goat spend the snowy, cold months of the winter. This habitat exists when elevation, slope, aspect, and vegetation combine to produce an area that provides animals with food, protection from harsh weather conditions, and security. Consequently, winter range is limited in size. This limited habitat area is generally found at lower elevations such as mountain foothills and valley floors. Big game use of winter range can shift locations in different years, depending on the weather and other factors. This shifting helps ensure that during the most severe winters, winter range areas have not been degraded by concentrated use year after year (MFWP 2012).

Spatial Context

The spatial context for the analysis is the BDNF boundary. The BDNF is divided into and managed by landscapes. Figure 2 displays landscape and Forest boundaries. Table 17 discloses acres of National Forest System (NFS) land by landscape.

Big Game Winter Range Analysis

It is illegal in the state of Montana to harass wildlife from snowmobiles. Based on MFWP (2013) statutes, “A person while operating a snowmobile may not: (1) use the snowmobile for the purpose of driving, rallying, or harassing game animals, game birds, or fur-bearing animals of the state or livestock...(2) discharge a firearm from or upon a snowmobile…” Local MFWP game wardens report there have been no tickets written nor do they have any cases open for wildlife harassment by snowmobile. Statewide, there have been five tickets written for wildlife harassment from a snowmobile between 1980 and 2015 (personal communications MFWP 2015). It is possible that harassment may be happening locally as well, but if it is, it is on such a small scale that although it might affect a few individuals there is no evidence that it is affecting

any big game populations.

Winter motorized travel usually occurs on the BDNF January through April. Snowmobile activities during December and May are sparse due to lack of snow and warm temperatures. Use is concentrated on weekends, with very little activity seen Monday through Friday. As described earlier in the SEIS, although actual winter motorized travel varies each season with the snow depth and condition of the snow, the use dates are identified as December 1 to May 15.

Although the majority of the forest is open to motorized use in the winter, approximately half of the motorized settings are not accessible to snowmobiles due to natural features such as dense timber, large rocks, cliffs, steep terrain, or inadequate snow depths. It is acknowledged however that technologic advances in snowmobile design have led to snowmobiles penetrating farther into backcountry areas. For this analysis, these areas are considered in the open area calculations.

The Draft 2014 Montana State Wildlife Action Plan was reviewed for state guidelines for OSV use. Although resource damage from off-road vehicles was mentioned as a threat, there was no guiding direction nor were there any identified threats specifically mentioned for OSVs in this document (MFWP 2014).

The Fish and Wildlife Recommendations for Subdivision Development in Montana: A Working Document was reviewed for state guidelines for OSV use. In reference to subdivision development this document states winter ranges are the most threatened by human encroachment because of their proximity to valley floors, foothills, rivers, and streams. There are no management recommendations for OSV use (MFWP 2012).

Montana's Comprehensive Fish and Wildlife Conservation Strategy (CFWCS) was reviewed for state guidelines for OSV use. Consistently across all areas covered by this strategy was the need to, "Work with the public and other agencies to establish sustainable recreation management practices, including designations of lands open, limited, or closed to off-road vehicle use" (MFWP 2005). There was a reference for MFWP law enforcement officers to, "Focus attention on violations associated with snowmobiles, ATVs, and water-based recreation that directly affect fish and wildlife and their habitats during certain times of the year" (MFWP 2005). There were no specific management recommendations focused on OSV use.

Montana's Crucial Areas Assessment and Planning (CAPS) tool was created as a refinement to the CFWCS. The Assessment built upon the CFWCS approach by analyzing and ranking the landscape for its value to "species and habitats of greatest conservation need" and socioeconomic valued species' habitat integrity. MFWP identified, ranked, and prioritized Montana's landscape for crucial habitats and connectivity for their biological importance. "The Western Governors' Wildlife Council defines "crucial habitat" as places containing the resources (including food, water, cover, shelter and important wildlife corridors) that are necessary for the survival and reproduction of aquatic and terrestrial wildlife and to prevent unacceptable declines, or facilitate future recovery of, wildlife populations; or are important ecological systems with high biological diversity value" (MFWP, 2015). Big game winter range was identified as a crucial area across the state of Montana. MFWP broke the winter range into two

sections: big game (pronghorn antelope, elk, moose, mule deer, and white-tailed deer) and bighorn sheep and mountain goat. For big game, the crucial area (winter range) is further categorized as high (highly valued winter range habitat) or moderate (important winter range habitat). Bighorn sheep and mountain goat habitat is also further categorized as high (winter range) and moderate (general range) (MFWP, 2015). MFWP produced big game winter range maps are used in this analysis. The methodology section of the CAPS data explains that, "Big game habitat values were determined by assigning points based on species use and habitat quality. All winter habitat was assigned an initial score of 1 and an additional point was assigned for more highly valued areas… In the western mountains, areas identified as winter use in the species distribution layers received one point…In the Southwest (FWP Regions 2 & 3), elk or mule deer was given an additional point." These layers were not only based on species distribution, but potential habitat as well (MFWP 2015).

Reviews of species data were conducted to determine which species are known to occur in the area or have suitable habitat present and could potentially occur. Sources reviewed include Montana Natural Heritage Program (MTNHP), Forest wildlife sighting database information, Forest Plan FEIS Appendix B (Biological Evaluation) and species distribution information from MFWP.

For each affected species, available population status and distribution information; occurrence records from inventory and monitoring efforts; hunting and trapping data; informal observation data; and the scientific literature for information on the biological and habitat (including home range size) requirements for species as well as species' response to disturbance was examined.

MFWP big game population numbers observed are dependent on survey conditions, such as the weather, flying conditions, and various other factors (Pers. com. MFWP, 2016).

Geographic Information System (GIS) contributed to the analysis of wildlife habitat for this document. The BDNF GIS Specialist and Wildlife Biologist used ArcGIS (ESRI software) to create various data layers which were the basis for the habitat and vegetation figures displayed in this document.

An OSV use map was created by Forest recreation staff and used in the effects analysis for all species. The effects analysis considers regular use cross country areas as predictable as regular use routes.

The wildlife analysis for the 2012 Final Supplemental Environmental Impact Statement for the Beaverhead-Deerlodge National Forest Land and Resource Management Plan to Comply with the District of Montana Court Order is incorporated by reference into this document.

Indicators and Measures (species specific):

Indicators are components of a species habitat, life cycle, or other variable that can be evaluated to determine potential effects to that species. Listed below are the indicators used for the effects analysis.

Acres/location of winter range open and closed to motorized winter recreation (OSVs)

- general big game

- bighorn sheep,
- mountain goat

Potential for disturbance from motorized winter recreation (OSVs)

- general big game species
- bighorn sheep,
- mountain goat

Existing Condition – Big Game Winter Range

As mentioned in the winter range definition, this habitat is generally found at lower elevations such as mountain foothills and valley floors. Although winter range habitat differs by big game species, is found on private, state and federal lands across the state. Table 14 displays the general big game winter range acreages and percentages across all ownerships, by Forest Service Landscapes. As displayed, **only 30 percent of the general big game winter range is on NFS lands** while 70 percent is on private, state or other federal lands. Figure A- 5 displays general big game winter range across the BDNF Landscapes.

Table 14: Existing General Big Game Winter Range Acres and Percentages, All Ownerships by BDNF Landscape

Landscape	Total Acres Winter Range	Percent Winter Range NFS	Percent Winter Range Non-NFS
Big Hole	538,067	35%	65%
Boulder River	199,239	67%	33%
Clark Fork Flint	834,767	29%	71%
Gravelly	1,739,971	20%	80%
Jefferson River	604,130	19%	81%
Lima Tendoy	782,702	32%	68%
Madison	255,356	36%	64%
Pioneer	631,883	47%	53%
Tobacco Root	476,018	21%	79%
Upper Clark Fork	225,343	30%	70%
Upper Rock Creek	219,171	51%	49%
Total Winter Range	**6,506,647**	**30%**	**70%**

Table 15 displays the general big game winter range by high and moderate value across all

ownerships, by Forest Service landscapes. As mentioned earlier in the document, MFWP further categorized winter range as high (highly valued winter range habitat) or moderate (important winter range habitat). Note that **only 30 percent of the high value general big game winter range is on NFS lands**, with 70 percent on private, state or other federal lands. The moderate value big game winter range is similar with 31 percent on NFS lands and 69 percent on private, state or other federal lands.

Table 15: High and Moderate Value General Big Game Winter Range Acres and Percentages, All Ownerships by BDNF Landscape

Landscape	Total Acres Winter Range - High	Percent Winter Range – High NFS	Percent Winter Range – High Non-NFS	Total Acres Winter Range - Moderate	Percent Winter Range – Moderate NFS	Percent Winter Range – Moderate Non-NFS
Big Hole	188,620	44%	56%	349,447	30%	70%
Boulder River	185,428	66%	34%	13,811	83%	17%
Clark Fork Flint	635,010	24%	76%	199,757	45%	55%
Gravelly	1,301,782	17%	83%	438,188	30%	70%
Jefferson River	436,643	24%	76%	167,488	4%	96%
Lima Tendoy	657,986	36%	64%	124,715	15%	85%
Madison	255,356	36%	64%	0	0%	0%
Pioneer	543,775	50%	50%	88,108	28%	72%
Tobacco Root	422,820	21%	79%	53,198	26%	74%
Upper Clark Fork	194,831	27%	73%	30,512	47%	53%
Upper Rock Creek	164,139	37%	63%	55,032	93%	7%
Totals	**4,986,390**	**30%**	**70%**	**1,520,257**	**31%**	**69%**

Table 16 displays the bighorn sheep and mountain goat winter ranges across all ownerships, broken out by Forest Service landscapes. For **bighorn sheep**, the percentages are very similar to general big game **where only 31 percent of winter range is on NFS lands**, and 69 percent on private, state or other federal lands. Mountain goat winter range however is almost the opposite. Most of the winter range is on NFS lands (76 percent) with only 24 percent on private, state or other federal lands. Mountain goats generally to not descend in elevation to winter. Their winter range is described as, “usually cliffy terrain, south-facing canyon walls, and

windblown ridgetops" (Ollif et. al. 1999). Refer to Figure B- 1 for bighorn sheep and Figure C- 1 and mountain goat winter range maps.

Table 16: Bighorn Sheep and Mountain Goat Winter Range Acres and Percentages, All Ownerships by BDNF Landscape

Landscape	Total Acres Winter Range - Bighorn Sheep	Percent Winter Range - Bighorn Sheep NFS	Percent Winter Range - Bighorn Sheep Non-NFS	Total Acres Winter Range Mountain Goat	Percent Winter Range - Mountain Goat NFS	Percent Winter Range - Mountain Goat Non-NFS
Big Hole	5,063	18%	82%	155,499	90%	10%
Boulder River	0	0%	0%	0	0%	0%
Clark Fork Flint	73,141	25%	75%	146,911	82%	18%
Gravelly	61,026	23%	77%	52,693	67%	33%
Jefferson River	87,613	3%	97%	0	0%	0%
Lima Tendoy	66,537	38%	62%	0	0%	0%
Madison	30,851	67%	33%	78,729	56%	44%
Pioneer	83,492	58%	42%	65,988	66%	34%
Tobacco Root	402	0%	100%	0	0%	0%
Upper Clark Fork	0	0%	0%	0	0%	0%
Upper Rock Creek	41,441	20%	80%	69,297	92%	8%
Totals	**449,566**	**31%**	**69%**	**635,753**	**76%**	**24%**

Table 17 displays acres of general big game, bighorn sheep, and mountain goat winter ranges by landscape representing only National Forest System (NFS) lands. These figures do not include other federal, state, and private lands within the specified landscape.

Maps displaying areas open and closed to winter motorized travel in general big game, bighorn sheep, and mountain goat winter ranges by alternative are available in Appendix A, B, and C.

Table 17: Existing BDNF Landscape and Big Game Winter Range Acres and Percentages on NFS Lands

Landscape	Acres of NFS	Acres Winter Range - General Big Game	Percent Winter Range - General Big Game	Acres Winter Range – Bighorn Sheep	Percent Winter Range – Bighorn Sheep	Acres Winter Range – Mountain Goat	Percent Winter Range – Mountain Goat
Big Hole	531,359	188,482	35%	927	0.2%	140,399	26%
Boulder River	203,291	134,422	66%	0	0%	0	0%
Clark Fork Flint	369,262	243,090	66%	18,560	5%	119,886	32%
Gravelly	469,386	345,475	74%	13,965	3%	35,228	8%
Jefferson River	190,613	112,077	59%	2,767	1%	0	0%
Lima Tendoy	367,524	253,887	69%	25,007	7%	0	0%
Madison	122,994	91,391	74%	20,686	17%	78,729	64%
Pioneer	574,125	297,937	52%	48,414	8%	43,680	8%
Tobacco Root	173,976	101,293	58%	0	0%	0	0%
Upper Clark Fork	83,317	66,659	80%	0	0%	0	0%
Upper Rock Creek	273,218	111,807	41%	8,168	3%	68,296	25%
Totals	3,359,065	1,946,522	58%	138,494	4%	486,219	14%

Available Population Data

Each species population data is handled differently by MFWP. Some species have very specific objectives and population counts while others do not; this can vary by MFWP region as well. MFWP population data was retrieved from the MFWP website and from local biologists, as available.

Rocky Mountain Elk

According to MFWP, elk are widely distributed across the national forests of Montana, including the BDNF. The MFWP 2015 statewide data show a population of approximately 133,726 animals. The state management objective is 90,910 with a range of 74,675 to 107,800. Compared to figures from 2007, the elk population in the hunt districts within the BDNF has grown. Table 18 displays observed elk numbers with population objectives by hunt district. It also displays which landscapes these districts are within. It is important to note that hunt district boundaries do not align with BDNF landscape boundaries. The Forest refers to the hunt districts as hunt units in the Forest Plan; these terms may be used interchangeably. Please see Figure A- 2 for the elk winter range map across the BDNF Landscapes.

Table 18: MFWP Elk Population Observed by Hunt Unit on the BDNF and Associated Landscapes.

Hunt Districts within the BDNF	MFWP State Elk Plan Objective	Lower Range	Upper Range	MFWP 2007 Observed	MFWP 2015 Observed	At / Over / Under	Landscape
210, 211	1,450	1,160	1,740	1,020	2,281	Over	Clark Fork Flints Upper Rock Creek
212	1,000	800	1,200	1,494	3,076	Over	Clark Fork Flints
213	750	600	900	484	516	Below	Clark Fork Flints
214	450	360	540	284	369	At	Clark Fork Flints Upper Rock Creek
215	1,400	1,120	1,680	1,234	2,765	Over	Clark Fork Flints Upper Clark Fork
216	325	260	390	473	259	Below	Upper Rock Creek
300	800	700	900	1335-1644	918	Over	Lima Tendoy
302	625	550	700	956	1,421	Over	Lima Tendoy
311	2,500	2,000	3,000	2,277	2,069	At	Madison
318	500	400	600	535	547	At	Boulder River
319	955	812	1,100	819	1,208	Over	Big Hole
320, 333	1,000	800	1,200	1,222	1,297	Over	Tobacco Root
321/334	0	0	0	0	0	No winter elk	Big Hole
322, 323, 324, 325, 326, 327, & 330	8,000	6,400	9,600	8,764	10,643	Over	Gravelly
328	625	550	700	635	917	Over	Lima Tendoy
329	830	760	900	727	1,110	Over	Big Hole Lima Tendoy Pioneer
331	1,290	1,180	1,400	1,085	1,071	Below	Pioneer
332	830	760	900	376*	882	At	Pioneer
340, 350 & 370	1,600	1,280	1,920	1,051	2,577	Over	Jefferson River Upper Clark Fork Boulder River

Hunt Districts within the BDNF	MFWP State Elk Plan Objective	Lower Range	Upper Range	MFWP 2007 Observed	MFWP 2015 Observed	At / Over / Under	Landscape
341	525	438	600	272	475	At	Upper Clark Fork Clark Fork Flints Big Hole
360	2,200	1,760	2,640	1,661	1,683	Below	Madison Gravelly
362	2,500	2,000	3,000	3,845	2,952	At	Madison Gravelly
Totals	30,155	24,690	35,610	30,549 - 30,858	39,001	--	

*Not a good data year for this hunt district. The elk were mostly in Idaho.

Moose

The portion of southwest Montana containing the BDNF is home to some of Montana's highest density moose populations. The public and private lands within 26 hunt districts spanning this area were estimated to house approximately 1,415 moose in 2006, according to an expert opinion survey of MFWP area biologists. While population survey data for moose in Montana are limited, statewide moose populations may have declined somewhat since the 1990's as evidenced primarily by hunter harvest statistics (DeCesare et al. 2014). Aerial counts conducted in southwest Montana suggest the potential for local declines in some areas but also show stable to increasing numbers in other areas (pers. com. N. DeCesare 2015). Local declines can be attributed partly to disease as well as other factors (Pers. com. MFWP, 2016). Although moose population data is limited several hunt districts in/near the BDNF were surveyed. The results are below.

Hunt districts (HD) 323, 327, 326, 325, 319 and 341 (the Big Hole area) were surveyed in February 2016. MFWP observed a total of 207 moose in 123 independent groups. This number is considered a minimum count not a population estimate however, the Big Hole moose population is at this time stable to increasing (Pers. comm. MFWP 2016).

Although just to the south of the Forest boundary, HD 334 was also surveyed in February 2016. MFWP observed a total of 119 moose which is 6% higher than the number observed (112) in 2015 and 2% above the 10-year average of 117. The observed number of moose was 72% above the long-term (1949-2016) average of 69. At this time, the population is healthy and current recruitment is driving that health (Pers. comm. MFWP 2016).

Please see Figure A- 3 for the moose winter range map across the BDNF Landscapes.

Mule Deer

According to MFWP, mule deer and white-tailed deer are the most widely distributed and abundant big game mammals in Montana. The 2014 estimates show the statewide mule deer population to be approximately 264,546 deer. The ten year average population estimate is 265,399. Although there may be differences regionally, the statewide population seems to be fairly stable. MFWP biologists stated that there had been region-wide declines in mule deer numbers in the recent past. The AHM stated, "The results of previous research in Montana, which was implemented in the mid 1970's at a time of low deer numbers similar to trends observed in the mid 1990's, would suggest that the most influential factors in deer population dynamics are weather, habitat condition, predation and other natural mortality, and hunter harvest" (MFWP 2001).

The MFWP Adaptive Harvest Management (AHM) plan states that the objective for mule deer in the Mountain-Foothill area of Montana (BDNF is within this area) is to, "Maintain the total number of deer observed during spring on population surveys areas within 20% of the long term average (at least ten years)." (MFWP, 2001). Region 2 did not provide mule deer population numbers based on hunt district. There are seven deer hunt districts in MFWP Region 2 on the BDNF, within the Clark Fork Flint and the Upper Rock Creek Landscapes: 210, 211, 212, 213, 214, 215 and 216. Across Region 2, the long term average (2005-2014) is 15,627 and the 2015 estimated population was identified as 14,267, below the long term average. Although lower than the long term average, it was the highest population estimate since 2008 (pers. com. MFWP 2016).

Table 19 displays the 2015 estimated mule deer population and 10-year average (2005-2015) for hunt districts within the BDNF (Pers. com. MFWP 2016). Please see Figure A- 4 for the mule deer winter range map across the BDNF Landscapes.

Table 19: Mule Deer Population Estimates & 10-year Average (2005-2015) for MFWP Region 3 Hunt Districts within the BDNF (Pers. com. MFWP 2016)

Hunt Districts within the BDNF	MFWP 2015 Estimated Population	Long Term (10 year) Pop. Average	Landscape
300	530	604	Lima Tendoy
302	882	701	Lima Tendoy
311	1,327	1,563	Madison
318	352	530	Boulder River
319	529	547	Big Hole
320	1,094	1,076	Tobacco Root
333	1,324	1,411	Tobacco Root

Hunt Districts within the BDNF	MFWP 2015 Estimated Population	Long Term (10 year) Pop. Average	Landscape
321	40	66	Big Hole
334	45	9	Big Hole
322	1,081	943	Gravelly
323	195	95	Gravelly
324	384	437	Gravelly
325	1,839	1,458	Gravelly
326	814	1,024	Gravelly
327	178	102	Gravelly
330	831	761	Gravelly
328	192	142	Lima Tendoy
329	399	391	Big Hole Lima Tendoy Pioneer
331	1,718	1,605	Pioneer
332	153	160	Pioneer
340	1,604	1,632	Jefferson River Upper Clark Fork
341	493	364	Upper Clark Fork Clark Fork Flint Big Hole
350	730	542	Upper Clark Fork Boulder River Jefferson River
370	255	287	Boulder River Jefferson River
341	493	364	Upper Clark Fork Clark Fork Flints Big Hole
360	956	898	Madison Gravelly

Hunt Districts within the BDNF	MFWP 2015 Estimated Population	Long Term (10 year) Pop. Average	Landscape
362	288	146	Madison Gravelly
Totals			Forestwide

White-tailed Deer

As mentioned above, mule deer and white-tailed deer are the most widely distributed and abundant big game mammals in Montana. The 2015 estimates show the statewide white-tailed deer population to be approximately 207,577 deer. The estimates for white-tailed deer populations are based upon population modeling with survey and harvest inputs (Pers. com. MFWP 2016).

BDNF is within parts of MFWP Regions 2 and 3. Table 20 below displays estimated white-tailed deer population numbers by Regions that the BDNF is within. There are several hunt districts with liberal hunting seasons on white-tail deer specifically to reduce the population. White-tailed deer is not a significant big game species on NFS lands as they reside primarily on private land year-round (Pers. com. MFWP 2016). Please see Figure A- 12 for the white-tailed deer winter range map across the BDNF Landscapes.

Table 20: White-tailed Deer Population Estimates & 10 year Average for MFWP Regions 2 & 3 (Pers. com. MFWP 2016).

MFWP Region	2015 Estimates	10 Year Average
2	35,872	33,791
3	23,451	23,974
Totals	59,323	57,765

Antelope

Today, pronghorn number over 1 million across North America. In Montana specifically, the 2014 estimates show the statewide antelope population to be approximately 121,696 bucks, does, and fawns. Table 21 displays the antelope (pronghorn) trend estimates by hunt unit and associated landscape. Antelope estimates are based upon densities observed on trend areas, expanded to the entire hunting district, and complete coverage surveys. Numbers from counts are not expanded to a true population estimate (Pers. com. MFWP 2016). Antelope is not a significant big game species on NFS lands as they reside primarily on private land year-round (Pers. com. MFWP 2016). Please see Figure A- 1 for the antelope winter range map across the BDNF Landscapes.

Table 21: MFWP 2015 Antelope Trend Estimates by Hunt Unit and Associated Landscape (Pers. com. MFWP 2016)

Hunt Districts within the BDNF	2011 Observed or Most Recent Observed	2015 Observed or Most Recent Observed	Year Counted	Landscape
215	191	108	2015	Clark Fork Flint Upper Clark Fork
300	1,416	1,299	2013	Lima Tendoy
301	150	213	2014	Lima Tendoy
310	800	940	2015	Pioneer
311**	1,285	357	2015	Tobacco Root Madison
318	2,094	1,755	2013	Pioneer
319	127	341	2013	Upper Clark Fork Big Hole Clark Fork Flint
320	528	419	2015	Tobacco Root
321	3,364	2,112	2014	Gravelly
341	598	976	2014	Jefferson River Upper Clark Fork
350	187	231	2014	Jefferson River Boulder River
360	2,356	1,556	2015	Madison Tobacco Root Gravelly
370	241	300	2015	Jefferson River Boulder River
Totals	13,337	10,607		Forestwide

**Although this hunt district overlaps slightly with the Forest, there is no antelope use on the Forest.

Bighorn Sheep

Although there have been severe pneumonia die-offs in the recent past, the 2014 estimates show the statewide bighorn sheep population to be approximately 6,650 rams, ewes, and lambs (Pers. com. MFWP 2015). Unlike the general big game discussion above, bighorn sheep are not found across the entire forest. Populations are scattered across the forest.

Based on hunt district information from MFWP, as of 2014 an estimated 985 bighorn sheep used the BDNF during the year. Table 22 displays the 2010 Bighorn Sheep Conservation Strategy objective and observed populations by hunt district and associated landscape. There are specific objectives for habitat and population management for each bighorn sheep herd. The management objectives have been truncated for the table. Please see the Bighorn Sheep Conservation Strategy 2010 for specific survey timing and other additional information for each herd (MFWP 2010). Please see Figure B- 1 for the bighorn sheep winter range map across the BDNF Landscapes.

Table 22: MFWP 2010 Bighorn Sheep Management Plan Objectives and Observed Populations by Hunt District and Associated Landscapes (Pers. Com. MFWP 2015, MFWP 2010)

Hunt Districts within the BDNF	Date Surveys Started	Original Survey Observations	2010 Plan Objective***	2014 Observations	Landscape
210	1986	44	160-240	140	Clark Fork Flints
212	2001	55	100-150	40*	Clark Fork Flints
213	1978	138	200-300	100	Clark Fork Flint Upper Clark Fork Big Hole
216	1981	128	240-360	210	Upper Rock Creek
301	1980	78	120-180	165	Madison
302	1980	78	80-120	280	Madison
315	1991	108	180- 220	50**	Lima Tendoy
340	1972	54	Minimum population of 125 sheep.	75	Jefferson River Pioneer
Greenhorns	2003	69	100 to 150	50	Gravelly
Totals		752	1,305-1,845	1,110	Forestwide

*This herd is known to be hard to survey aerially; this is likely a low observation figure.
**Due to excessive disease, this population is currently in the process of being removed (MFWP, 2015).

Mountain Goat

There are four mountain goat hunt districts in Region 2 on the BDNF: 212, 222, 223 and 231. The Regional biologist explained that these hunt districts were closed several years ago due to population declines. They have not been surveyed since they were closed so there are no current population estimates (Pers. com. MFWP 2016). Table 23 displays the estimated mountain goat populations by hunt unit and associated landscape for MFWP Region 3. MFWP

biologists warn that these are minimum population numbers and they could be much higher. Mountain goats are difficult to monitor and weather conditions are the primary factor in how successful surveys are (Pers. Com. MFWP 2016). Please see Figure C- 1 for the mountain goat winter range map across the BDNF Landscapes.

Table 23: MFWP Region 3 Estimated Mountain Goat Populations by Hunt Unit and Associated Landscapes

Hunt Districts within the BDNF	Survey Range	Survey Average	Current Population Estimates	Landscape
312	Not available	Not available	100 - 150	Pioneer
320	1955-2015	55	27	Tobacco Root
321	Not available	Not available	< 25	Lima Tendoy
322	1988-2016	Downward Trend	42	Big Hole Lima Tendoy
324	2010	66	71	Madison
325	2003 - 2014	33	41	Madison Gravelly
326	2003 - 2014	20	22	Madison
331	1972 - 2015	46	48	Gravelly
340	Unavailable	Stable	10	Jefferson River
Totals			Approx. 386 - 436	Forestwide

Literature review summary regarding big game

There have been many studies done on ungulates and winter recreation; not all specific to winter motorized travel. In Yellowstone National Park researchers found that, “Wildlife may become conditioned to human activity when the activity is controlled, predictable, and not harmful to the animals” (Borkowski et al. 2006). Canfield et al. found the greatest negative responses were measured for unpredictable or erratic occurrences. Many management recommendations prefer use to be limited to trails so animals can predict use. It has been noted that tendencies to habituation vary by species, but habituated ungulates are almost always undesirable, especially in a hunted population (Canfield et al. 1999).The other thing to remember is that even though seemingly habituated, “Animals may never show any level of response to stimuli. But even when an animal lacks an observable behavioral response, a non-observable physiological stress-response may occur” (Hardy, 2001). Additional information on the effects of winter recreation on ungulates from Knight and Gutzwiller (1995) state that, “The literature on ungulates is large enough to show the flexibility of mammalian habitat use in the

face of disturbances. If noisy sources enter the habitat on a schedule (e.g., snowmobiles on weekends, construction noise), deer, sheep, and elk avoid areas when the noisy sources are present and return when they are not (Van Dyke et al. 1986; Dorrance et al. 1975; Edge and Marcum 1985; Leslie and Douglas 1980). If the exposure is brief or if mammals have good cover, differences in home-range size are not detectable (Eckstein et al. 1979; Edge et al. 1985). If mammals are exposed repeatedly to the same noisy stimulus without harassment, responses decline rapidly (Krausman et al. 1986; Valkenburg and Davis 1985)."

Colescott and Gillingham did a study specific to moose and snowmobile traffic. They found that, "Moose appeared to move away from the active snowmobile trail as the day progressed. Consequently, snowmobile traffic, although it did not appear to alter moose activity significantly, did influence the behavior of moose positioned within 300 meters of a trail and did displace moose to less favorable habitats." However they also found that snowmobile traffic did not cause moose to permanently leave large riparian areas but that they did move further into the willow habitat (Colescott and Gillingham, 1998).

Bighorn Sheep: Both the Montana Bighorn Sheep Conservation Strategy and the Effects of winter recreation on wildlife of the Greater Yellowstone Area: a literature review and assessment (Olliff et al. 1999) show that recreationists may cause increased stress for bighorn sheep during critical winter months, which may influence their survivability. Snowmobiles may force sheep from forage and cause increased energy expenditure. Snowmobile tracks may also provide a pathway for predators to access sheep normally protected by deep snow. Over time, excessive harassment of bighorns by snowmobilers could lead to abandonment of portions of their winter range. This may decrease the overall productivity of the population and increase the probability of predation and death. However, Olliff et al. also state that," Skiing, snowmobiling, mountaineering, and snowshoeing will most likely only affect bighorn sheep wintering at higher elevations. The encounters between these recreationists and the bighorns may be infrequent enough that there would be little or no impact to the animals."

While MFWP identified snowmobiles and recreation on the winter range as a potential negative impact for bighorn sheep herds, they did not identify any herds on the BDNF where this management challenge applies (MFWP 2010).

Mountain Goats: The impacts of human disturbance on goat populations have been clearly demonstrated in numerous cases; however, these cases conspicuously lack a clear case demonstrating the effects of recreation on goats during winter. Some human disturbances have been shown to alter goat behavior, and disturbance can affect physiology, distribution, habitat use, fecundity, and, ultimately, population health. However, as stated above, there is little known about winter recreation disturbances and their effects on mountain goats (Olliff et al. 1999). Olliff et al. 1999 also states that, "Goats are adaptable and can habituate to potentially adverse stimuli if they are gradually acclimatized and negative associations are avoided. This possibility is best achieved when stimuli sources are localized and highly predictable."

That said, currently there are very few cases of potential conflict with mountain goats as a result of winter recreational activities on the BDNF (per. com. MFWP 2016). Current MFWP biologists mirror what Olliff et al. 1999 suggest, "…mountain goat winter range is inaccessible and precipitous, goats and recreationists are not often coming into conflict. For recreation,

humans tend not to seek the combination of rocky, rugged terrain, and low-snow conditions required by mountain goats. Rather, snowmobilers and skiers prefer deep snow conditions, which are typically avoided by goats. The discrepancy in site preferences appears to be a factor in mutual avoidance by goats and humans during winter."

Please refer to the Wildlife Report available in the project file for additional effects to big game from literature reviews. Table 24 through Table 26 display the percentages of general big game, bighorn sheep and mountain goat winter range open to winter motorized travel on the BDNF by Forest Plan alternative. See Figure A- 6 through Figure A- 11 for general big game winter range maps by alternative. See Figure B- 2 through Figure B- 7 for bighorn sheep winter range maps by alternative. See Figure C- 2 through Figure C- 7 for mountain goat winter range maps by alternative.

Table 24: General Big Game: Percent of Winter Range Open to Winter Motorized Travel by Alternative

Landscape	BDNF Winter Range Acres	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6 Modified
Big Hole	188,482	96%	92%	85%	96%	91%	91%
Boulder River	134,422	90%	90%	75%	90%	76%	66%
Clark Fork Flint	243,090	90%	91%	79%	91%	81%	83%
Gravelly	345,475	79%	77%	32%	79%	50%	50%
Jefferson River	112,077	99.98%	86%	58%	100%	58%	47%
Lima Tendoy	253,887	81%	81%	42%	81%	62%	53%
Madison	91,391	9%	0%	0%	9%	0%	0%
Pioneer	297,937	86%	82%	68%	86%	77%	77%
Tobacco Root	101,293	98%	98%	40%	98%	49%	55%
Upper Clark Fork	66,659	90%	88%	74%	90%	74%	66%
Upper Rock Creek	111,807	76%	76%	68%	76%	65%	59%
Forestwide	1,946,522	83%	81%	57%	83%	65%	63%

Table 25: Bighorn Sheep: Percent of Winter Range Open to Winter Motorized Travel by Alternative

Landscape	BDNF Winter Range Acres	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6 Modified
Big Hole	927	N/A	N/A	N/A	N/A	N/A	N/A
Boulder River	0	N/A	N/A	N/A	N/A	N/A	N/A
Clark Fork Flint	18,560	78%	78%	39%	78%	43%	43%
Gravelly	13,965	28%	15%	12%	28%	14%	14%
Jefferson River	2,767	100%	100%	100%	100%	100%	100%
Lima Tendoy	25,007	75%	75%	23%	75%	63%	63%
Madison	20,686	0%	0%	0%	0%	0%	0%
Pioneer	48,414	81%	79%	77%	81%	77%	76%
Tobacco Root	0	N/A	N/A	N/A	N/A	N/A	N/A
Upper Clark Fork	0	N/A	N/A	N/A	N/A	N/A	N/A
Upper Rock Creek	8,168	69%	69%	23%	69%	6%	19%
Forestwide	138,494	61%	60%	41%	61%	48%	49%

Table 26: Mountain Goat: Percent of Winter Range Open to Winter Motorized Travel by Alternative

Landscape	BDNF Winter Range Acres	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6 Modified
Big Hole	140,399	49%	48%	39%	49%	43%	44%
Boulder River	0	N/A	N/A	N/A	N/A	N/A	N/A
Clark Fork Flint	119,886	97%	93%	57%	97%	74%	77%
Gravelly	35,228	49%	49%	0%	49%	0%	0%
Jefferson River	0	N/A	N/A	N/A	N/A	N/A	N/A
Lima Tendoy	0	N/A	N/A	N/A	N/A	N/A	N/A
Madison	78,729	9%	2%	0%	9%	0.1%	1%
Pioneer	43,680	64%	63%	38%	64%	64%	64%

Landscape	BDNF Winter Range Acres	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6 Modified
Tobacco Root	0	N/A	N/A	N/A	N/A	N/A	N/A
Upper Clark Fork	0	N/A	N/A	N/A	N/A	N/A	N/A
Upper Rock Creek	68,296	40%	40%	31%	40%	40%	22%
Totals	486,219	54%	52%	33%	54%	42%	41%

Effects of OSV Use on Big Game Forestwide, Specific by Alternative

The wildlife analysis for the 2012 Final Supplemental Environmental Impact Statement for the Beaverhead-Deerlodge National Forest Land and Resource Management Plan to Comply with the District of Montana Court Order is incorporated by reference into this document.

Forestwide

General Big Game

Across all BDNF landscapes, including NFS lands, private, state and other federal lands, there are approximately 6,506,647 acres of general big game winter range as identified by MFWP. Of all the ownerships, only 30 percent of the general big game winter range is on NFS lands. Of that number, approximately 4,986,390 acres are considered high value winter range. Of all the ownerships, only 30 percent of the high value general big game winter range is on NFS lands. The discussions that follow, focus on the NFS lands only, but it is important to remember that NFS lands make up a small portion of the total general big game winter range. Please refer to Table 14 for existing general big game winter range acres and percentages for all ownerships and by BDNF Landscape. Refer to Table 15 for the high and moderate value winter range percentages for all ownerships across the BDNF.

Forestwide, Alternative 1 (Figure A- 6) proposes keeping approximately 1,620,338 acres or 83% of general big game winter range on NFS lands open to winter motorized travel. This leaves approximately 326,184 acres or 17% of general big game winter range on NFS lands in a non-motorized classification across the BDNF. This Alternative, along with Alternative 4 leave the most acres of big game winter range open to winter motorized travel. There are many landscapes where elk could potentially be disturbed by OSVs. The Boulder Landscape is the only area however where OSV use on the winter range has been identified as an issue (Pers. com. MFWP 2016). Across the Forest however, only four Hunt Districts are below population objectives for elk; unrelated to OSV traffic (Pers. com. MFWP 2016). The population objective for all the Hunt Districts across the Forest is 30,155 and the 2015 observed elk population is 39,001. For reference, the 2007 observed elk population was approximately 30,549 - 30,858. As you can see, the elk population across the BDNF has grown even with current OSV management. In general, forestwide, OSV travel is not affecting elk populations (Pers. com.

MFWP 2016). There are many landscapes where moose could potentially be disturbed by OSVs however the Boulder and Gravelly Landscapes are the only areas where this use has been identified as an issue. Even with potential effects to individuals, moose populations in these areas seem to be stable at this time (Pers. com. MFWP 2016). There are many landscapes where mule deer could potentially be disturbed by OSV travel however, it has not been identified as an issue for any mule deer populations across the Forest (Pers. com. MFWP 2016). There are no white-tailed deer or antelope winter ranges on the BDNF being affected by OSV travel (Pers. com. MFWP 2016).

Forestwide, Alternative 2 (Figure A- 7) proposes to decrease acres of general big game winter range open to winter motorized travel to approximately 1,567,227 acres or 81% of the winter range on NFS lands. Conversely this increases the acres of general big game winter range in a non-motorized classification across the forest to approximately 379,295 acres or 19% of the winter range on NFS lands. Approximately 53,100 additional acres of winter range would be closed to winter motorized use under this Alternative. The effects from this Alternative are similar to those expected under Alternative 1 except in the Madison Landscape. The entire big game winter range on NFS lands would be closed to winter motorized use. Across the Forest there would still be the potential for effects to big game from this Alternative. As stated above, in general, OSV travel is not affecting elk, moose or mule deer populations on the BDNF (Pers. com. MFWP 2016). There are no white-tailed deer or antelope winter ranges on the BDNF being affected by OSV travel (Pers. com. MFWP 2016). This alternative would reduce potential effects on general big game winter range from Alternatives 1 and 4.

Forestwide, Alternative 3 (Figure A- 8) proposes to decrease acres of general big game winter range open to winter motorized travel to approximately 1,102,623 acres or 57% of the winter range on NFS lands. Conversely this increases the acres of general big game winter range in a non-motorized classification across the forest to approximately 843,899 acres or 43% of the winter range on NFS lands. Approximately 517,700 additional acres of winter range would be closed to winter motorized use under this Alternative. In eight of the eleven landscapes this Alternative closes the most big game winter range to OSV use. Some of the closures were in regularly and intermittently used areas by OSVs which would reduce potential effects to elk, mule deer and moose. However, most of the closures were in areas that receive seldom to no use by OSVs. These closures would be most effective during high snow years when OSV use may expand from what has been commonly utilized. This alternative would specifically reduce potential effects to elk and moose from OSV travel in the Boulder and Gravelly Landscapes where additional winter range areas are proposed to become non-motorized. Even so, there is still the potential for disturbance/displacement to elk, mule deer and elk on across the Forest. As stated above, in general, OSV travel is not affecting elk, moose or mule deer populations on the BDNF (Pers. com. MFWP 2016). There are no white-tailed deer or antelope winter ranges on the BDNF being affected by OSV travel (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4, 5 or 6 Modified.

Although under Alternative 4 (Figure A- 9) Forestwide, there would be an increase in areas available for motorized travel, the number of acres of general big game winter range open to winter motorized travel increased very slightly to 1,622,389 acres, but the percentage stayed

the same at 83%. This leaves approximately 324,133 acres or 17% of general big game winter range on NFS lands still in a non-motorized classification across the forest. The effects of this Alternative are identical to Alternative 1. This alternative would not reduce potential effects on general big game winter range from OSV use, it would potentially increase them.

Forestwide, Alternative 5 (Figure A- 10) proposes to decrease acres of general big game winter range open to winter motorized travel to approximately 1,263,981 acres or 65% of the winter range on NFS lands. Conversely this increases the acres of general big game winter range in a non-motorized classification across the forest to approximately 682,541 acres or 35% of the winter range on NFS lands. Approximately 356,300 additional acres of winter range would be closed to winter motorized use under this Alternative. Although some of the closures were in regularly and intermittently used areas by OSVs which would reduce potential effects to elk, mule deer and moose, most of the closures proposed in this Alternative were in areas that receive seldom to no use by OSVs. These closures would be most effective during high snow years when OSV use may expand from what has been commonly utilized. As with Alternative 3, this alternative would specifically reduce potential effects to elk and moose from OSV travel in the Boulder and Gravelly Landscapes Even so, there is still the potential for disturbance/displacement to elk, mule deer and elk on across the Forest. As stated above, in general, OSV travel is not affecting elk, moose or mule deer populations on the BDNF (Pers. com. MFWP 2016). There are no white-tailed deer or antelope winter ranges on the BDNF being affected by OSV travel (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from Alternatives 1, 2 and 4.

Forestwide, Alternative 6 Modified (Figure A- 11) also proposes to decrease acres of general big game winter range open to winter motorized travel to approximately 1,218,142 acres or 63% of the winter range on NFS lands. Conversely this increases the acres of general big winter range in a non-motorized classification across the forest to approximately 728,380 acres or 37% of the winter range on NFS lands. Approximately 402,200 additional acres of winter range would be closed to winter motorized use under this Alternative. This Alternative closes the second highest amount of big game winter range to OSV use. In five of the eleven landscapes this Alternative closes the most acres on big game winter range. Some of the closures were in regularly and intermittently used areas by OSVs which would reduce potential effects to elk, mule deer and moose. However, most of the closures were in areas that receive seldom to no use by OSVs. These closures would be most effective during high snow years when OSV use may expand from what has been commonly utilized. There are many landscapes where elk could potentially be disturbed by OSV travel however there is only one Landscape (Boulder) where it has been identified as an issue for individual elk. Alternative 6 Modified added closures to reduce effects specifically to elk on the winter range in this Landscape. In general however, OSV travel across the BDNF is not affecting elk populations (Pers. com. MFWP 2016). There are many landscapes where moose could also potentially be disturbed by OSV travel, however the Boulder and Gravelly Landscapes are the only areas where this use has been identified as an issue. Alternative 6 Modified closes additional winter range areas specifically for moose in the Boulder Landscape and the Madison District Ranger agreed to proceed with a signing plan (beginning with the 2016/2017 winter season) to reduce effects to moose wintering in willow bottoms along the West Fork of the Madison River in the Gravelly Landscape. Even with

potential effects to individuals, moose populations in these areas seem to be stable at this time (Pers. com. MFWP 2016). There are a few landscapes where mule deer could potentially be disturbed by OSV travel however, it has not been identified as an issue for any mule deer populations across the Forest (Pers. com. MFWP 2016). There are no white-tailed deer or antelope winter ranges on the BDNF being affected by OSV travel (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4 and 5.

Bighorn Sheep

Across all BDNF landscapes, including NFS lands, private, state and other federal lands, there are approximately 449,566 acres of bighorn sheep winter range as identified by MFWP. Of all the ownerships, only 31 percent of the bighorn sheep winter range is on NFS lands. The discussions that follow, focus on the NFS lands only, but it is important to remember that NFS lands make up a small portion of the total bighorn sheep winter range. Please refer to Table 16 for existing bighorn sheep winter range acres and percentages for all ownerships and by BDNF Landscape.

Forestwide, Alternative 1 (Figure B- 2) proposes to keep approximately 85,040, acres or 61% of bighorn sheep winter range on NFS lands open to winter motorized travel. This leaves approximately 53,454 acres or 39% of bighorn sheep winter range on NFS lands in a non-motorized classification across the forest. This Alternative, along with Alternative 4 leave the most bighorn sheep winter range open to winter motorized travel. The Gravelly Landscape has the only bighorn sheep winter range with winter travel consistently through it. Recreationists drive through it on the main road to reach the unloading point. There is no off road travel in the bighorn sheep winter range and negative effects from off-road travel is not expected (pers. com. MFWP 2016). The Pioneer Landscape is the only other area where if bighorn sheep are in the area at the same time as intermittent OSV travel effects could be increased stress, increased energy expenditures on these animals or displacement from preferred habitats on parts of the winter range. Although these effects could be possible, MFWP has not identified snowmobile use on the Forest as a management challenge for any of the bighorn sheep herds on the BDNF (MFWP, 2010).

Forestwide, Alternative 2 (Figure B- 3) proposes to decrease acres of bighorn sheep winter range open to winter motorized travel to approximately 82,722 acres or 60% of the winter range on NFS lands. Conversely this increases the acres of bighorn sheep winter range in a non-motorized classification across the forest to approximately 55,772 acres or 40% of the winter range on NFS lands. Although this Alternative closes more acres, this Alternative is very similar to Alternative 1 and Alternative 4 in that over half the bighorn sheep winter range remains open to winter motorized travel. Although effects to bighorn sheep could be possible, MFWP has not identified snowmobile use on the Forest as a management challenge for any of the bighorn sheep herds on the BDNF (MFWP, 2010). This alternative would reduce potential effects on bighorn sheep winter range from Alternatives 1 and 4.

Forestwide, Alternative 3 (Figure B- 4) proposes to decrease acres of bighorn sheep winter range open to winter motorized travel to approximately 57,424 acres or 41% of the winter

range on NFS lands. Conversely this increases the acres of bighorn sheep winter range in a non-motorized classification across the forest to approximately 81,070 acres or 59% of the winter range on NFS lands. Forestwide, this Alternative closes the most bighorn sheep winter range to OSV travel. There are still areas open with intermittent winter motorized travel on the winter range. Although effects to bighorn sheep could be possible, MFWP has not identified snowmobile use on the Forest as a management challenge for any of the bighorn sheep herds on the BDNF (MFWP, 2010). This alternative would further reduce potential effects on bighorn sheep winter range from OSV travel than Alternatives 1, 2, 4, 5 or 6 Modified.

Although under Alternative 4 (Figure B- 5) Forestwide, there would be an increase in areas available for motorized travel, the number of acres of bighorn sheep winter range on NFS lands open to winter motorized travel increased very slightly to 85,131 acres, but the percentage stayed the same at 61%. This leaves approximately 53,364 acres or 39% of bighorn sheep winter range on NFS lands still in a non-motorized classification across the forest. This Alternative, along with Alternative 1 leave the most bighorn sheep winter range open to winter motorized travel. Although effects to bighorn sheep could be possible, MFWP has not identified snowmobile use on the Forest as a management challenge for any of the bighorn sheep herds on the BDNF (MFWP, 2010). This alternative would not reduce the potential effects on bighorn sheep winter range from OSV use, it would potentially increase them.

Forestwide, Alternative 5 (Figure B- 6) proposes to decrease acres of bighorn sheep winter range open to winter motorized travel to approximately 66,850 acres or 48% of the winter range on NFS lands. Conversely this increases the acres of bighorn sheep winter range in a non-motorized classification across the forest to approximately 71,644 acres or 52% of the winter range on NFS lands. Forestwide, this Alternative is very similar to Alternative 3 closes the second most bighorn sheep winter range to OSV travel. Although effects to bighorn sheep could be possible, MFWP (2010) has not identified snowmobile use on the Forest as a management challenge for any of the bighorn sheep herds on the BDNF. This alternative would further reduce potential effects on bighorn sheep winter range from Alternatives 1, 2, 4 and 6 Modified.

Alternative 6 Modified Figure B- 7) proposes to decrease acres of bighorn sheep winter range open to winter motorized travel to approximately 67,360 acres or 49% of the winter range on NFS lands. Conversely this increases the acres of bighorn sheep winter range in a non-motorized classification across the forest to approximately 71,134 acres or 51% of the winter range on NFS lands. This Alternative closes just over half the bighorn sheep winter range and the effects are similar to Alternatives 3 and 5. Although effects to bighorn sheep could be possible, MFWP has not identified snowmobile use on the Forest as a management challenge for any of the bighorn sheep herds on the BDNF (MFWP, 2010). This alternative would further reduce potential effects on bighorn sheep winter range from OSV travel than Alternatives 1, 2, and 4.

Mountain Goat

Across all BDNF landscapes, including NFS lands, private, state and other federal lands, there are approximately 635,753 acres of mountain goat winter range as identified by MFWP. Of all the ownerships, 76 percent of the mountain goat winter range is on NFS lands. As mentioned earlier, mountain goats do not generally descend in elevation to winter. The discussions that follow focus on NFS lands only, but it is important to remember that 24 percent of the mountain goat winter range is comprised of private, state and other federal lands. Please refer to Table 16 for existing mountain goat winter range acres and percentages for all ownerships and by BDNF Landscape.

Forestwide, Alternative 1 (Figure C- 2) proposes to keep approximately 264,738 acres or 54% of mountain goat winter range on NFS lands open to winter motorized travel. This leaves approximately 221,481 acres or 46% of mountain goat winter range on NFS lands in a non-motorized classification across the forest. This is the highest amount of mountain goat winter range left open with the most chance for conflict between motorized recreation and mountain goats, but only in three Landscapes, Clark Fork Flint, Pioneer and Upper Rock Creek (Pers. com. MFWP 2016). Overall, this Alternative, along with Alternative 4 keeps the most mountain goat winter range open to OSV use. In most of the areas of potential conflict across the forest the use is intermittent; there is still a chance that mountain goats could be disturbed/displaced while on the winter range areas. Although disturbance to individuals is possible, MFWP biologists stated there is no evidence that OSV travel is affecting any of the mountain goat populations on the BDNF (pers. com. MFWP 2016).

Forestwide, Alternative 2 (Figure C- 3) proposes to decrease acres of mountain goat winter range open to winter motorized travel to approximately 253,853 acres or 52% of the winter range on NFS lands. Conversely this increases the acres of mountain goat winter range in a non-motorized classification across the forest to approximately 232,365 acres or 48% of the winter range on NFS lands. This Alternative is very similar to Alternative 1; the only noticeable differences are additional acres closed to OSV use in the Clark Fork Flint and the Madison Landscapes to reduce potential effects from OSVs. In most of the areas of potential conflict across the forest, the use is intermittent; there is still a chance that mountain goats could be disturbed/displaced while on the winter range areas. Although disturbance to individuals is possible, MFWP biologists stated there is no evidence that OSV travel is affecting any of the mountain goat populations on the BDNF (pers. com. MFWP 2016). This alternative would reduce potential effects on mountain goat winter range from Alternatives 1 and 4.

Forestwide, Alternative 3 (Figure C- 4) proposes to decrease acres of mountain goat winter range open to winter motorized travel to approximately 161,282 acres or 33% of the winter range on NFS lands. Conversely this increases the acres of mountain goat winter range in a non-motorized classification across the forest to approximately 324,936 acres or 67% of the winter range on NFS lands. This Alternative provides the most closures for mountain goats on the winter ranges with an additional 103,456 acres closed to winter motorized use. Mountain goat winter range in the Gravelly and the Madison Landscapes and the western portion of the Pioneer Landscape would be specifically closed to motorized use to reduce potential effects. Although there are additional closures across the rest of the Forest and the use is primarily

intermittent, there is still a slight chance that mountain goats could be disturbed/displaced while on these other winter range areas. Although disturbance to individuals is possible, MFWP biologists stated there is no evidence that OSV travel is affecting any of the mountain goat populations on the BDNF (pers. com. MFWP 2016). This alternative would further reduce potential effects on mountain goat winter range from OSV travel than Alternatives 1, 2, 4, 5 or 6 Modified.

Forestwide, Alternative 4 (Figure C- 5) proposes to retain the existing areas open to winter motorized travel on mountain goat winter range on NFS lands at 264,738 acres or 54%. This conversely retains acres of mountain goat winter range on NFS lands in a non-motorized classification at 221,481 acres or 46%. The effects from this Alternative are identical to Alternative 1. Although disturbance to individuals is possible, MFWP biologists stated there is no evidence that OSV travel is affecting any of the mountain goat populations on the BDNF (pers. com. MFWP 2016). This alternative would not reduce the potential effects on mountain goat winter range from OSV use.

Forestwide, Alternative 5 (Figure C- 6) proposes to decrease acres of mountain goat winter range open to winter motorized travel to approximately 204,020 acres or 42% of the winter range on NFS lands. Conversely this increases the acres of mountain goat winter range in a non-motorized classification across the forest to approximately 282,199 acres or 58% of the winter range on NFS lands. This Alternative increases acres closed to OSVs for mountain goats on the winter range with an approximate 60,700 acres additionally closed to winter motorized use. The Forest Service sections of the winter ranges in the Gravelly and Madison Landscapes specifically would be closed to motorized use to reduce potential effects. Although there are increased closures in the Big Hole and Clark Fork Flint landscapes, and the use is primarily intermittent, there is still a chance that mountain goats could be disturbed/displaced while on other winter range areas across the Forest, specifically the Clark Fork Flint, Pioneer and Upper Rock Creek Landscapes. Although disturbance to individuals is possible, MFWP biologists stated there is no evidence that OSV travel is affecting any of the mountain goat populations on the BDNF (pers. com. MFWP 2016). This alternative would further reduce potential effects on mountain goat winter range from Alternatives 1, 2, and 4.

Alternative 6 Modified (Figure C- 7) proposes to decrease acres of mountain goat winter range open to winter motorized travel to approximately 197,856 acres or 41% of the winter range on NFS lands. Conversely this increases the acres of mountain goat winter range in a non-motorized classification across the forest to approximately 288,363 acres or 59% of the winter range on NFS lands. This Alternative closes the second most number of acres for mountain goats on the winter ranges with approximately 66,800 acres additionally closed to winter motorized use with the effects being similar to Alternative 5. Although disturbance to individuals is possible, MFWP biologists stated there is no evidence that OSV travel is affecting any of the mountain goat populations on the BDNF (pers. com. MFWP 2016). This alternative would further reduce potential effects on mountain goat winter range from OSV travel than Alternatives 1, 2, 4 and 5.

Effects of OSV Use on Big Game, Specific by Landscape and Alternative

Big Hole Landscape

The Big Hole Landscape comprised of NFS lands, private, state and other federal lands, has approximately 538,067 acres of general big game winter range, 5,063 acres of bighorn sheep winter range and 155,499 acres of mountain goat winter range as identified by MFWP. Of those figures, only 35 percent (188,482 acres) of general big game, 18 percent (927 acres) of bighorn sheep, and 90 percent (140,339 acres) of mountain goat winter ranges are on NFS lands. Please refer to Table 14 and Table 16 for existing general big game, bighorn sheep and mountain goat winter range acres and percentages for all ownerships and by BDNF Landscape. The discussions that follow, focus on the NFS lands only, but it is important to remember that NFS lands make up a small portion of both general big game and bighorn sheep winter ranges. It is also important to remember that 10 percent of the mountain goat winter range is also comprised of private, state and other federal lands.

There are no population objectives for elk in the south half of this Landscape as no elk winter in Hunt District 321/334. The population objective for elk for Hunt District 319, the north half of the Landscape, is 955 and as of 2015, there were an estimated 1,208 animals (exceeding objective). The combined mule deer long term average (LTA) in the Big Hole Landscape is 622 and the 2015 estimated population was 614, slightly below the LTA. The moose population in this Landscape is approximately 207 moose (minimum number) and is considered stable. As there have been no surveys recently, there are no estimates for the mountain goat population (Anaconda-Pintler) in this Landscape (Pers. com. MFWP 2016). Bighorn sheep, white-tailed deer and antelope do not winter on NFS lands in the Big Hole Landscape therefore none of the Alternatives would affect individuals or their winter range habitats.

See Figure A- 6 through Figure A- 11 for general big game winter range maps by Landscape and by alternative. See Figure C- 2 through Figure C- 7 for mountain goat winter range maps by Landscape and by alternative.

General Big Game

Alternative 1 proposes keeping approximately 180,577 acres or 96% of general big game winter range on NFS lands open to winter motorized travel in the Big Hole Landscape. This leaves approximately 7,905 acres or 4% of general big game winter range on NFS lands in a non-motorized classification in this Landscape. Although this discussion centers on a combined group of species, there are very few elk that winter in the Big Hole valley. The elk in the northwestern part of this Landscape winter on the Bitterroot National Forest and the elk in the southwestern part of the Landscape winter in Idaho. There are elk, however, in the northeastern part (Wise River area) of the Landscape. This is also where the mule deer and moose winter in this Landscape. According to MFWP, this northeastern area is high value winter range. This area gets intermittent/seldom to no winter motorized travel. There is a slight chance that in this area, individual elk, moose, or mule deer on the winter range could be disturbed/displaced by winter motorized travel. Although MFWP maps show moose winter

range on the eastern fringe of this Landscape, according to the local biologist, they winter throughout the Landscape (Pers. com. MFWP 2016). As there are several areas which receive regular use, there is a chance that if moose are on the winter range with OSVs, they could be displaced to less favorable habitats. The elk in this Landscape currently exceed objectives so although there may be effects to individuals, OSV use has not been identified as an issue for the elk, mule deer or moose populations in this area (Pers. com. MFWP 2016).

Alternative 2 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 92% (172,726 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 8% (15,756 acres). Approximately 7,800 additional acres of the winter range would be closed to winter motorized use under this Alternative. This closure area would mostly benefit moose that may be on the winter range in this Landscape. A good portion of the Landscape would still remain open to winter motorized travel. As there are several areas which receive regular use, there is a chance that if moose are on the winter range with OSVs, they could be displaced to less favorable habitat or pushed on to the willow bottoms in the valley. This Alternative does not increase acres closed to OSV travel in the northeastern side of the Landscape so due to the intermittent winter motorized use in that area, individual elk, moose, or mule deer on the winter range could be disturbed/displaced. Elk in this Landscape currently exceed objectives so although there may be effects to individuals, OSV use has not been identified as an issue for the elk, mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would reduce potential effects on general big game winter range from Alternatives 1 and 4.

Alternative 3 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 85% (159,918 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 15% (28,565 acres). This Alternative would close the most acres to OSV use on big game winter range. Approximately 20,600 additional acres of the winter range would be closed to winter motorized use under this Alternative. This closure area would mostly benefit moose that may be on the winter range in this Landscape. This Alternative does not close additional acres in the northeastern side (Wise River area) of the Landscape so due to the intermittent winter motorized use in that area, individual elk, moose, or mule deer on the winter range could be disturbed/displaced. Elk in this Landscape currently exceed objectives so although there may be effects to individuals, OSV use has not been identified as an issue for the elk, mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4, 5 and 6 Modified.

Alternative 4 proposes to increase areas open to winter motorized travel on general big game winter range on NFS lands to 182,132 acres; it is still at 96%. Conversely, this decreases the acres of general big game winter range in a non-motorized classification to 6,350 acres but is still 4% of the winter range on NFS lands. The effects from this Alternative are identical to Alternative 1. There is a slight chance that in the northeast part (Wise River area) of the Landscape, moose, or mule deer on the winter range could be disturbed/displaced by winter motorized travel. There is a chance that if moose are on the winter range with OSVs they could be displaced to less favorable habitats. Elk in this Landscape currently exceed objectives.

Although there may be effects to individuals, OSV use has not been identified as an issue for the elk, mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use, it would potentially increase them.

Alternative 5 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 91% (171,926 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 9% (16,557 acres). Approximately 8,600 additional acres of the winter range would be closed to winter motorized use under this Alternative. This closure area would mostly benefit moose that may be on the winter range in this Landscape. A good portion of the Landscape would still remain open to winter motorized travel. As there are several areas which receive regular use, there is a chance that if moose are on the winter range with OSVs, they could be displaced to less favorable habitat or pushed on to the willow bottoms in the valley. This Alternative does not close additional acres to OSV use in the northeastern side of the Landscape so due to the intermittent winter motorized use in that area, individual elk, moose, or mule deer on the winter range could be disturbed/displaced. Elk in this Landscape currently exceed objectives so although there may be effects to individuals, OSV use has not been identified as an issue for the elk, mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from Alternatives 1, 2 and 4.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 91% (172,106 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 9% (16,376 acres). Approximately 8,500 additional acres of winter range would be closed to winter motorized use under this Alternative. The effects of this alternative are the same as those under Alternative 5. Due to intermittent winter motorized use in that area, individual elk, moose, or mule deer on the winter range could be disturbed/displaced. Elk in this Landscape currently exceed objectives. Although there may be effects to individuals, use has not been identified as an issue for the elk, mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2 and 4.

Bighorn Sheep

Although the Big Hole Landscape has a small amount of bighorn sheep winter range, the winter range is located on private land. Since none of the Alternatives propose changing management on private land, bighorn sheep are not further discussed for the Big Hole Landscape.

Mountain Goat

Alternative 1 proposes to keep approximately 69,435 acres or 49% of mountain goat winter range on NFS lands open to winter motorized travel in the Big Hole Landscape. This leaves approximately 70,964 acres or 51% of mountain goat winter range on NFS lands in a non-motorized classification in this Landscape. Although official MFWP winter range maps show mountain goats outside of the wilderness, according to the local MFWP biologist, they spend all

of their time in the Anaconda-Pintler Wilderness, where OSV travel is already closed (Pers. com. MFWP 2016). However, according to the winter use maps and official big game winter range maps, part of the mountain goat range that is open to winter motorized travel is only used intermittently. Although extremely unlikely, there is still a possibility that the intermittent OSV use could affect mountain goats, if the activities were in the same area and especially if the recreationists were traveling close to the herds. Research has shown though that mountain goats can habituate to adverse stimuli if they are gradually acclimatized and negative associations are avoided (Olliff et al. 1999). As mentioned earlier, mountain goats prefer areas that are rocky, have rugged terrain, and low-snow conditions, none of which are conducive to OSV activities. Although disturbance is possible, the local MFWP biologist did not identify instances where winter motorized travel is affecting the mountain goat population in the Big Hole Landscape (pers. com. MFWP 2016).

Alternative 2 proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 48% (67,576 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 52% (72,823 acres). Approximately 1,800 acres more would be closed to motorized use under this Alternative. Although the local MFWP biologists state the this mountain goat populations live primarily in the Anaconda-Pintler Wilderness (Pers. com. MFWP 2016), according to the winter use maps and official big game winter range maps, part of the mountain goat range that is open to winter motorized travel is only used intermittently. Although extremely unlikely, there is still a possibility that the intermittent OSV use could affect mountain goats, if the activities were in the same area and especially if the recreationists were traveling close to the herds. Research has shown though that mountain goats can habituate to adverse stimuli if they are gradually acclimatized and negative associations are avoided (Olliff et al. 1999). As mentioned earlier, mountain goats prefer areas that are rocky, have rugged terrain, and low-snow conditions, none of which are conducive to OSV activities. Although disturbance is possible, the local MFWP biologists did not identify instances where winter motorized travel is affecting the mountain goat population in the Big Hole Landscape (pers. com. MFWP 2016). This alternative would reduce potential effects on mountain goat winter range from Alternatives 1 and 4.

Alternative 3 proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 39% (54,583 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 61% (85,815 acres). Almost 14,800 more acres would be closed to motorized use under this Alternative. This would close the most acres open to OSV use in mountain goat winter range. This Alternative protects more of the south end of the winter range. Although the local MFWP biologists state the this mountain goat populations live primarily in the Anaconda-Pintler Wilderness (Pers. com. MFWP 2016), according to the winter use maps and official big game winter range maps, the part of the mountain goat range that is open to winter motorized travel is only used intermittently. There is still a possibility that the intermittent OSV use could affect mountain goats, if the activities were in the same area and especially if the recreationists were traveling close to the herds. Research has shown though that mountain goats can habituate to adverse stimuli if they are gradually acclimatized and negative associations are avoided (Olliff et al. 1999). As mentioned earlier, mountain goats prefer areas that are rocky, have rugged terrain,

and low-snow conditions, none of which are conducive to motorized OSV activities. Although disturbance is possible, the local MFWP biologist did not identify instances where winter motorized travel is affecting the mountain goat population in the Big Hole Landscape (pers. com. MFWP 2016). This alternative would further reduce potential effects on mountain goat winter range from OSV travel than Alternatives 1, 2, 4, 5 and 6 Modified.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on mountain goat winter range on NFS lands at 49% (69,435 acres). This conversely retains acres of mountain goat winter range on NFS lands in a non-motorized classification at 51% (70,964 acres). This Alternative has the same effects as Alternative 1. Although disturbance is possible, the local MFWP biologist did not identify instances where winter motorized travel is affecting the mountain goat population in the Big Hole Landscape (pers. com. MFWP 2016). This alternative would not reduce the potential effects on mountain goat winter range from OSV use.

Alternative 5 proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 43% (60,087 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 57% (80,312 acres). More than 9,000 acres would be added to the non-motorized designations. Like Alternative 3, this Alternative protects more of the south end of the winter range. Although the local MFWP biologists state the this mountain goat populations live primarily in the Anaconda-Pintler Wilderness (Pers. com. MFWP 2016), according to the winter use maps and official big game winter range maps, the part of the mountain goat range that is open to winter motorized travel is only used intermittently. This is an area that generally does not have sufficient snow depth for snowmobiles or other OSVs. However, there is still a possibility that the intermittent OSV use could affect mountain goats, if the activities were in the same area and especially if the recreationists were traveling close to the herds. Research has shown though that mountain goats can habituate to adverse stimuli if they are gradually acclimatized and negative associations are avoided (Olliff et al. 1999). As mentioned earlier, mountain goats prefer areas that are rocky, have rugged terrain, and low-snow conditions, none of which are conducive to OSV activities. Although disturbance is possible, the local MFWP biologist did not identify instances where winter motorized travel is affecting the mountain goat population in the Big Hole Landscape (pers. com. MFWP 2016). This alternative would further reduce potential effects on mountain goat winter range from Alternatives 1, 2, 4 and 6 Modified.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 44% (61,779 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 56% (78,619 acres). This Alternative would have a little over 7,500 acres added to the non-motorized designation. The effects of this alternative are almost identical as to Alternative 5. Although disturbance is possible, the local MFWP biologist did not identify instances where winter motorized travel is affecting the mountain goat population in the Big Hole Landscape (pers. com. MFWP 2016). This alternative would further reduce potential effects on mountain goat winter range from OSV travel than Alternatives 1, 2 and 4.

Boulder River Landscape

The Boulder River Landscape comprised of NFS lands, private, state and other federal lands, has winter range for general big game (199,239 acres) as identified by MFWP. Of that figure, 67 percent (134,422 acres) of the winter range is on NFS lands. Please refer to Table 14 for existing general big game winter range acres and percentages for all ownerships and by BDNF Landscape. The discussions that follow, focus on the NFS lands only and although these lands have over half the winter range, it is important to remember that 33 percent of the general big game winter range is also comprised of private, state and other federal lands. There is no winter range in this Landscape for antelope, white-tailed deer, bighorn sheep, or mountain goat.

There are three hunt districts within this Landscape, 318, 350 and 370. The population objective for elk for Hunt District 318 is 500 and as of 2015, there were an estimated 547 animals (at objective). The population objective for Hunt District 350, combined with HDs 340 and 370, is 1,600 animals. As of 2015, there were an estimated 2,557 (exceeding objective) in the three hunt districts combined. The combined mule deer long term average (LTA) in Boulder Landscape is 1,357 and the 2015 estimated population was 1,337, slightly below the LTA. Although there are no specific population surveys for moose in this Landscape according to MFWP, the population at this time seems stable (pers. com. 2016).

Winter range use by elk in the Boulder Landscape is quite different from almost all other landscapes on the Forest. Except during extremely bad winters, elk winter on the forest in small groups. When the snow gets too deep in the meadows, they split up and move higher into the timber to forage. Unlike other landscapes, this one is not surrounded by low elevation private agricultural land. This is the only landscape where there are elk wintering consistently in areas with OSV travel. This is also an area where according to MFWP, the OSV use map (Figure 9) underrepresents use in the landscape (Pers. com. MFWP 2016).

Moose in this Landscape winter in almost the same areas as the elk. Although they do prefer higher elevation riparian areas with willows, and along the Boulder River, they will also forage in the timber and have been photographed in areas of belly deep snow. There is a high energy cost for moose associated with travel in high snow depths (Pers. com. MFWP 2016).

See Figure A 6 through Figure A 11 for general big game winter range maps by Landscape and by alternative.

General Big Game

Alternative 1 proposes to keep approximately 120,432 acres or 90% of general big game winter range on NFS lands open to winter motorized travel in the Boulder River Landscape. Almost all of this winter range is considered high value. This leaves approximately 13,991 acres or 10% of general big game winter range on NFS lands in a non-motorized classification in this Landscape. According to the use map, approximately 8% of the Landscape is regularly used for winter motorized travel and approximately 3% is used intermittently, 82% is used seldom to none and 7% is closed. Most of the regular use is on the north east side of the Landscape which includes some cross country OSV use, and along the main road along the Boulder River. There is also a

series of regularly utilized routes in the western part of the Landscape. Although there is mule deer winter range in this Landscape, these areas are used by OSVs seldom to none, and in the Boulder Landscape specifically, the mule deer are wintering on steep, rocky, timbered areas not conducive to OSV travel. It is unlikely that OSV travel is affecting mule deer winter range in the Boulder Landscape (Pers. com. MFWP 2016). Elk and moose are the species most likely to be disturbed/displaced by winter motorized travel in this Landscape.

Research shows that although snowmobile traffic did not appear to alter moose activity significantly, it did influence the behavior of moose positioned within 300 meters of a trail and did displace moose to less favorable habitats, although not completely out of riparian habitats (Colescott and Gillingham, 1998). In this Landscape, if they aren't already there, moose could be pushed down into the private land willow areas along the Boulder River, but they are also being seen at high elevations in belly deep snow. There has in the past been a concern that OSVs are moving individual moose around, and there is still the potential for that to happen in this alternative. There was also a past concern that snowmobiles were utilizing willow communities however the local MFWP biologist stated that during 2015-2016 winter range aerial surveys, extensive snowmobile use in willow communities along the Boulder River was not noted (Pers. com. MFWP 2016). Although the moose population seems to be stable, MFWP biologists cannot say with certainty what effect OSVs are having on the population (Pers. com. MFWP 2016).

It is possible that in the past, elk in this Landscape may have shifted their use patterns away from the high and even intermittent use areas but this is primarily anecdotal. Although nothing can be said statistically about the effects of OSV use on this elk population specifically, OSVs are utilizing the winter range at the same time as the elk and potential effects are likely (Pers. com. MFWP 2016).

Alternative 2 proposes to retain the existing areas open to winter motorized travel on general big game winter range on NFS lands at 90% (120,432 acres). This conversely retains acres of general big game winter range on NFS lands in a non-motorized classification at 10% (13,990 acres). The effects from this Alternative are identical to Alternative 1 above. As there is regular OSV use in the winter range, effects to elk and moose are likely (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use.

Alternative 3 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 75% (100,649 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 25% (33,773 acres). Approximately 19,800 additional acres would be closed to winter motorized travel in this Alternative. Additional acres of the winter range are proposed to be closed under this Alternative to reduce effects of OSV travel to elk and moose, but as there is still regular OSV use in the winter range and although reduced, effects to elk and moose are possible (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4 and 5.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on general big game winter range on NFS lands at 90% (120,432 acres). This conversely retains acres of

general big game winter range on NFS lands in a non-motorized classification at 10% (13,990 acres). The effects from this Alternative are identical to Alternatives 1 and 2 above. As there is regular OSV use in the winter range, effects to elk and moose are likely (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use.

Alternative 5 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 76% (102,637 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 24% (31,786 acres). Approximately 17,800 additional acres would be closed to winter motorized travel in this Alternative. For all intents and purposes, the effects from this Alternative are identical to Alternative 3 above. Additional acres of the winter range are proposed to be closed under this Alternative to reduce effects of OSV travel to elk and moose, but as there is still regular OSV use in the winter range and although reduced, effects to elk and moose are possible (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from Alternatives 1, 2 and 4.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 66% (88,352 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 34% (46,071 acres). Approximately 32,000 additional acres would be closed to winter motorized travel in this Alternative. Based on initial comments from MFWP, Alternative 6 Modified closes the most winter range acres as compared to the other Alternatives to reduce effects to elk and moose from OSVs. As much of the winter range is proposed to be closed in this Alternative, effects to elk and moose are less likely but still possible (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 3, 4 and 5.

Bighorn Sheep

There is no bighorn sheep range in the Boulder River Landscape; therefore they will not be further discussed.

Mountain Goat

There is no mountain goat range in the Boulder River Landscape; therefore they will not be further discussed.

Clark Fork Flint Landscape

The Clark Fork Flint Landscape comprised of NFS lands, private, state and other federal lands, has approximately 834,767 acres of general big game winter range, 73,141 acres of bighorn sheep winter range and 146,911 acres of mountain goat winter range as identified by MFWP. Of those figures, only 29 percent (243,090 acres) of general big game, 25 percent (18,560 acres) of bighorn sheep, and 82 percent (119,886 acres) of mountain goat winter ranges are on NFS lands. Please refer to Table 14 and Table 16 for existing general big game, bighorn sheep and mountain goat winter range acres and percentages for all ownerships and by BDNF Landscape.

The discussions that follow, focus on the NFS lands only, but it is important to remember that NFS lands make up a small portion of both general big game and bighorn sheep winter ranges. It is also important to remember that 18 percent of the mountain goat winter range is also comprised of private, state and other federal lands.

This Landscape is made up of two distinct mountain ranges, the Flint Creek Range and the Boulder Mountains, with the Flints encompassing most of the Landscape. There are parts of seven hunt districts within this Landscape; 210, 211, 212, 213, 214, 215, and 341. In all but Hunt District (HD) 213, the elk population is either at or over objectives. HD 213 at an observed 516 elk is below the objective of 750 however MFWP stated that these elk shift between hunt districts, so they were likely in HD 212 during the counts (Pers. com. MFWP 2016). Refer to Table 18 for specific population figures. The Clark Fork Flint Landscape is within bighorn sheep hunt districts 210, Region 2 does not report mule deer population numbers by hunt unit. Although there are no specific population surveys for moose in this Landscape according to MFWP, the population at this time seems stable. 212, 213 with an estimated 280 animals across the three distinct populations (Anaconda, Garrison and Lower Rock Creek). As there have been no surveys recently, there are no estimates for the mountain goat population in this Landscape (Pers. com. MFWP 2016). Although the official winter range maps show use by Anaconda-Pintler herd outside of the wilderness, according to local MFWP biologists, these goats stay at the alpine/subalpine area of the Anaconda-Pintler wilderness (Pers. com. MFWP 2016). There is no antelope or white-tailed deer winter range in this Landscape.

See Figure A- 6 through Figure A- 11 for general big game winter range maps by Landscape and by alternative. See Figure B- 2 through Figure B- 7 for bighorn sheep winter range maps by Landscape and by alternative. See Figure C- 1 through Figure C- 7 for mountain goat winter range maps by Landscape and by alternative.

General Big Game

Alternative 1 proposes to keep approximately 219,981 acres or 90% of general big game winter range on NFS lands open to winter motorized travel in the Clark Fork Flint Landscape. This leaves approximately 23,109 acres or 10% of general big game winter range on NFS lands in a non-motorized classification in this Landscape. There are areas of both high and moderate value winter range within this Landscape. An estimated 6% of the Landscape receives regular use, 20% receives intermittent use and 66% is seldom to never used for winter motorized travel. In the Flint Creek Range, according to MFWP observations, most of the OSV travel is occurring to the north and south of the Georgetown Lake area, very similar to the OSV map (Figure 9). Access to OSV use, based on private land and terrain, is extremely limited in most areas to the north and east (Pers. com. MFWP 2016). Although a portion of these areas are on the official MFWP winter range maps, the local biologist stated that it is not good winter range for either elk or mule deer. Much of this landscape is not utilized for OSV travel and although there could possibly be individual elk disturbed to the north and south of Georgetown Lake, it would be unlikely in this area. There are no issues with OSV travel and elk and mule deer winter range in this area (Pers. com. MFWP 2016). Moose are the species potentially displaced by winter motorized in this area. Moose in this area however spend time along Montana State Highway 1 and around the Georgetown Lake campgrounds and are subjected to not only OSVs,

but to vehicles on the highway. Moose in this area are for the most part habituated to traffic. They tend to stay in the heavy willow areas, similar to what the research states (Pers. com. MFWP 2016). In the Boulder Mountains, when the snow gets deep enough to use OSVs, the elk travel north off the BDNF to the Spotted Dog Wildlife Management Area (adjacent to the Helena NF) or north and west to private land. They are generally not on the forest at the same time as winter recreationists (Pers. com. MFWP 2016). There is a chance that if individual elk, moose, or mule deer south of Deer Lodge are near the regularly used routes they could be disturbed or displaced by winter motorized traffic. In this case there are non-motorized areas near these regularly used routes that animals could move in to before they were displaced to private land. The elk population in this Landscape is currently healthy so although there may be effects to individuals, OSV use is not affecting the elk population in this area. OSV use has not been identified as an issue for the mule deer or moose populations in this area (Pers. com. MFWP 2016).

Although the percentage of winter motorized travel didn't change for the Clark Fork Flint Landscape, Alternative 2 proposes to increase slightly areas open to winter motorized travel on general big game winter range on NFS lands to 91% (220,216 acres). Conversely, this decreases the acres of general big game winter range on NFS lands in a non-motorized classification to 9% (22,874 acres). Although there are approximately 200 acres less protected in the winter range, they are in an area that receives no use by OSVs. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. Effects from this Alternative are identical to Alternative 1. The elk population in this Landscape is currently healthy so although there may be effects to individuals, OSV is not affecting the elk population in this area. OSV use has not been identified as an issue for the mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use, it would potentially increase them.

Alternative 3 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 79% (191,486 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 21% (51,604 acres). This Alternative close the highest number of acres from OSV use in high and moderate value big game winter range in this Landscape. Approximately 28,500 additional acres would be closed to winter motorized travel. Although this is positive for big game, there are only a few areas of intermittent use that would be closed. None of the regular use areas would be closed. Basically the effects of this Alternative are still the same as for Alternatives 1 and 2. The elk population in this Landscape is currently healthy so although there may be effects to individuals, OSV is not affecting the elk population in this area. OSV use has not been identified as an issue for the mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4, 5 and 6 Modified.

Although the percentage of areas open to winter motorized travel didn't change for the Clark Fork Flint Landscape, Alternative 4 proposes to increase slightly areas open to winter motorized travel on general big game winter range to 91% (220,216 acres). Conversely, this decreases the acres of general big game winter range in a non-motorized classification to 9% (22,874 acres).

Effects from this Alternative are identical to Alternatives 1 and 2. The elk population in this Landscape is healthy so although there may be effects to individuals, OSV use is not affecting the elk population in this area. OSV use has not been identified as an issue for the mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use, it would potentially increase them.

Alternative 5 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 81% (197,564 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 19% (45,526 acres). Approximately 22,400 additional acres would be closed to winter motorized travel. Although this is positive for big game, there are only a few areas of intermittent use that would be closed. None of the regular use areas would be closed. Basically the effects of this Alternative are still the same as for Alternatives 1, 2 and 3. The elk population in this Landscape is currently healthy so although there may be effects to individuals, OSV use does not seem to be affecting the elk population in this area. OSV use has not been identified as an issue for the mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4, and 6 Modified.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 83% (202,547 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 17% (40,542 acres). Approximately 17,400 additional acres would be closed to winter motorized travel. Although this is positive for big game on both high and moderate value winter range, there are only a few areas of intermittent use that would be closed. None of the regular use areas would be closed. Basically the effects of this Alternative are still the same as for Alternatives 1, 2, 3 and 5. The elk population in this Landscape is currently healthy so although there may be effects to individuals, OSV use is not affecting the elk population in this area. OSV use has not been identified as an issue for the mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4 and 6 Modified.

Bighorn Sheep

Alternative 1 proposes to keep approximately 14,454 acres or 78% of bighorn sheep winter range on NFS lands open to winter motorized travel in the Clark Fork Flint Landscape. This leaves approximately 4,106 acres or 22% of bighorn sheep winter range on NFS lands in a non-motorized classification in this Landscape. There are three herds within this Landscape, the Lower Rock Creek herd to the very northwest, the Anaconda herd to the southeast, and the Garrison herd just northwest of Deer Lodge (off forest). Although there is a high percentage of bighorn sheep winter range open to winter motorized travel, little OSV travel takes place in these areas as there is not usually enough snow. Additionally, the Anaconda herd is quite habituated to traffic as they can be seen regularly along Montana State Highway 1 during the winter. MFWP is not seeing any OSV use in areas with these bighorn sheep herds (Pers. com. MFWP 2016). Although potential effects, though unlikely could be possible, MFWP has not

identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Clark Fork Flint Landscape (Pers. com. MFWP, 2016).

Although the percentage of areas open to winter motorized travel didn't change for the Clark Fork Flint Landscape Alternative 2 proposes to increase slightly areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 78% (14,544 acres). Conversely, this decreases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 22% (4,016 acres). This alternative is identical to Alternative 1. MFWP is not seeing any OSV use in areas with these bighorn sheep herds (Pers. com. MFWP 2016). Although potential effects, although unlikely could be possible, MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Clark Fork Flint Landscape (Pers. com. MFWP, 2016). This alternative would not reduce the potential effects on bighorn sheep winter range from OSV use, it would potentially increase them.

Alternative 3 proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 39% (7,196 acres). Conversely, this increases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 61% (11,363 acres). This alternative closes an additional 7,200 acres of the winter range acres to winter motorized travel; the most of all alternatives. Winter range used by the Lower Rock Creek herd on the BDNF would be completely closed and almost half of the BDNF winter range used by the Anaconda herd would also be closed. However, as mentioned before, MFWP is not seeing any OSV use in areas with these bighorn sheep herds (Pers. com. MFWP 2016). Although potential effects, although unlikely, could be possible, MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Clark Fork Flint Landscape (Pers. com. MFWP, 2016). This alternative would further reduce potential effects on bighorn sheep winter range from OSV travel than Alternatives 1, 2, 4, 5 and 6 Modified.

Although the percentage of winter motorized travel didn't change for the Clark Fork Flint Landscape, Alternative 4 proposes to increase slightly areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 78% (14,544 acres). Conversely, this decreases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 22% (4,016 acres). This alternative is identical to Alternatives 1 and 2. MFWP is not seeing any OSV use in areas with these bighorn sheep herds (Pers. com. MFWP 2016). Although potential effects, although unlikely, could be possible, MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Clark Fork Flint Landscape (Pers. com. MFWP, 2016). This alternative would not reduce the potential effects on bighorn sheep winter range from OSV use, it would potentially increase them.

Alternative 5 proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 43% (7,991 acres). Conversely, this increases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 57% (10,568 acres). This alternative along with Alternative 6 Modified would close an additional 6,500 acres of the bighorn sheep winter range acres to winter motorized travel. Winter range used by the Lower Rock Creek herd on the BDNF would still stay open but almost half of the BDNF winter range used by the Anaconda herd would be closed. However, as mentioned before, MFWP is not seeing any OSV use in areas with these bighorn sheep herds (Pers. com. MFWP 2016). Although

potential effects, although unlikely, are possible, MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Clark Fork Flint Landscape (Pers. com. MFWP, 2016). This alternative would further reduce potential effects on bighorn sheep winter range from OSV travel than Alternatives 1, 2 and 4.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 43% (7,991 acres). Conversely, this increases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 57% (10,568 acres). Effects of this Alternative are identical to Alternative 5. Winter range used by the Lower Rock Creek herd on the BDNF would still stay open but almost half of the BDNF winter range used by the Anaconda herd would be closed. However, as mentioned before, MFWP is not seeing any OSV use in areas with these bighorn sheep herds (Pers. com. MFWP 2016). Although potential effects, although unlikely, are possible, MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Clark Fork Flint Landscape (Pers. com. MFWP, 2016). This alternative would further reduce potential effects on bighorn sheep winter range from OSV travel than Alternatives 1, 2 and 4.

Mountain Goat

Alternative 1 proposes to keep approximately 115,897 acres or 97% of mountain goat winter range on NFS lands open to winter motorized travel in the Clark Fork Flint Landscape. This leaves approximately 3,989 acres or 3% of mountain goat winter range on NFS lands in a non-motorized classification in this Landscape. This alternative and Alternative 4 leave the most acres open to OSV travel on mountain goat winter range. There are two main mountain goat herds within this Landscape, one in the Anaconda-Pintler Wilderness and one in the Flint Creek Range. As mentioned earlier, the goat herd in the wilderness stay up high, protected by wilderness non-motorized designations (Pers. com. MFWP 2016). There are no anticipated effects to this mountain goat herd from OSV use. Although most of the Flint Creek Range seldom sees winter motorized activity, there are areas that receive intermittent use within the winter range. There is only a very small portion of this area that is non-motorized. There is generally good snow for motorized activities in this area but much of this area is steep, rocky, and complex. OSVs are going to be limited in their distribution based on the topography and according to the local MFWP biologist, this area mainly sees weekend use (Pers. com. MFWP 2016). Mountain goats in the Flint Creek Range could be disturbed intermittently from winter motorized travel under this Alternative. Although disturbance is possible, the local MFWP biologist, did not identify instances where winter motorized travel is affecting either of the mountain goat populations in the Clark Fork Flint Landscape (pers. com. MFWP 2016).

In the Clark Fork Flint Landscape, Alternative 2 proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 93% (111,963 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 7% (7,923 acres). Although this Alternative provides slightly more non-motorized area (approximately 4,000 acres) the effects of this Alternative are almost identical to Alternative 1. No effects are anticipated to the Anaconda-Pintler herd but Mountain goats in the Flint Creek Range could be disturbed and have their distribution and habitat use restricted by winter motorized travel under this Alternative. Although disturbance is possible,

the local MFWP biologist, did not identify instances where winter motorized travel is affecting any of the mountain goat populations in the Clark Fork Flint Landscape (pers. com. MFWP 2016). This alternative would further reduce potential effects on mountain goat winter range from OSV travel than Alternatives 1 and 4.

Alternative 3 proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 57% (68,679 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 43% (51,007 acres). This alternative closes the most acres available for OSV travel in mountain goat winter range in this Landscape. It does close over 47,000 more acres of the winter range to winter motorized use, especially a large section in the Flint Creek Range. As with Alternatives 1 and 2, no effects are anticipated to the Anaconda-Pintler herd. Although the best habitat for wintering mountain goats in the Flint Creek Range would be closed under this Alternative, there is still a chance that there could be some disturbance and their distribution and habitat use could be restricted by winter motorized travel. Although disturbance is possible, the local MFWP biologist, did not identify instances where winter motorized travel is affecting either of the mountain goat populations in the Clark Fork Flint Landscape (pers. com. MFWP 2016). This alternative would further reduce potential effects on mountain goat winter range from OSV travel than Alternatives 1, 2, 4, 5 and 6 Modified.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on mountain goat winter range on NFS lands at 97% (115,897 acres). This conversely retains acres of mountain goat winter range on NFS lands in a non-motorized classification at 3% (3,989 acres). The effects from this Alternative are the same as Alternative 1. Although disturbance is possible, the local MFWP biologist, did not identify instances where winter motorized travel is affecting either of the mountain goat populations in the Clark Fork Flint Landscape (pers. com. MFWP 2016). This alternative would not reduce the potential effects on mountain goat winter range from OSV use.

Alternative 5 proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 74% (88,669 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 26% (31,217 acres). It does close over 27,000 more acres of the winter range to winter motorized use, especially a large section in the Flint Creek Range. As with Alternatives 1, 2, 3 and 4, no effects are anticipated to the Anaconda-Pintler herd. Effects would be similar to Alternatives 3 and 6 for the mountain goats in the Flint Creek Range. As 74% of the winter range is still open to motorized travel, there is still a chance that mountain goats could be disturbed and that their distribution and habitat use could be restricted by those activities. Although disturbance is possible, the local MFWP biologist, did not identify instances where winter motorized travel is affecting either of the mountain goat populations in the Clark Fork Flint Landscape (pers. com. MFWP 2016). This alternative would further reduce potential effects on mountain goat winter range from OSV travel than Alternatives 1, 2, 4 and 6 Modified.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 77% (92,272 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 23%

(27,614 acres). It does close over 23,500 more acres of the winter range to winter motorized use, especially a large section in the Flint Creek Range. As with Alternatives 1, 2, 3, and 5, no effects are anticipated to the Anaconda-Pintler herd. Effects would be similar to Alternatives 3 and 5 for the mountain goats in the Flint Creek Range. As 77% of the winter range is still open to motorized travel, there is still a chance that mountain goats could be disturbed and that their distribution and habitat use could be restricted by those activities. Although disturbance is possible, the local MFWP biologist, did not identify instances where winter motorized travel is affecting either of the mountain goat populations in the Clark Fork Flint Landscape (pers. com. MFWP 2016). This alternative would further reduce potential effects on mountain goat winter range from OSV travel than Alternatives 1, 2 and 4.

Gravelly Landscape

The Gravelly Landscape comprised of NFS lands, private, state and other federal lands, has approximately 1,739,971 acres of general big game winter range, 61,026 acres of bighorn sheep winter range and 52,693 acres of mountain goat winter range as identified by MFWP. Of those figures, only 20 percent (345,475 acres) of general big game, 23 percent (13,965 acres) of bighorn sheep, and 67 percent (35,228 acres) of mountain goat winter ranges are on NFS lands. Please refer to Table 14 and Table 16 for existing general big game, bighorn sheep and mountain goat winter range acres and percentages for all ownerships and by BDNF Landscape. The discussions that follow, focus on the NFS lands only, but it is important to remember that NFS lands make up a small portion of both general big game and bighorn sheep winter ranges. It is also important to remember that 33 percent of the mountain goat winter range is also comprised of private, state and other federal lands.

This Landscape is made up of three distinct mountain ranges, the Snowcrests, Greenhorns and Gravellys. The very southeastern tip of this Landscape is also within the Centennial Mountain Range. There are four hunt districts, 323, 324, 327 and 330 in this Landscape. The elk population objectives for this Landscape are combined with hunt districts 322, 325, and 326. The objective for this combined area is 8,000 elk and as of 2015, there were 10,643 animals observed (exceeding objective). The combined mule deer long term average (LTA) in the Gravelly Landscape is 4,820 and the 2015 estimated population was 5,322, above the LTA (Pers. com. MFWP 2016). In 2016, the observed number of moose for HD 334, just south of the forest, but within the Gravelly Landscape, was 119 moose (minimum number). At this time, the population is healthy and current recruitment is driving that health (Pers. comm. MFWP 2016). There are two areas of critical moose winter range in this Landscape; along the Ruby River and the West Fork of the Madison River and associated drainages (Pers. com. MFWP 2016). There is neither white-tailed deer nor antelope winter range in the Gravelly Landscape. There is a bighorn sheep herd, reintroduced in 2003-2004, in the Greenhorn Mountains with an estimated 50 animals with an objective of 100-150. The Bighorn Sheep Conservation Strategy states that, "…it is not known whether the remaining number of sheep will be sufficient to establish a viable population…" (MFWP 2010). This population is not hunted. Hunt District 331, in the Snowcrest Mountains, is the only mountain goat HD in this landscape. Based on the survey average in Table 23, monitoring data indicates a stable population at 48 animals (Pers. com. MFWP 2016).

See Figure A- 6 through Figure A- 11 for general big game winter range maps by Landscape and by alternative. See Figure B- 2 through Figure B- 7 for bighorn sheep winter range maps by Landscape and by alternative. See Figure C- 1 through Figure C- 7 for mountain goat winter range maps by Landscape and by alternative.

General Big Game

During the 2016 analysis process, the harassment/disruption of moose on the winter range by OSVs in the West Fork of the Madison River area was identified by MFWP. The local MFWP biologist recommended an education plan that involves signing similar to those at the Konda Trailhead in the Boulder Landscape. . The Madison District Ranger agreed to proceed with this signing plan (beginning with the 2016/2017 winter season) to reduce effects to moose wintering in willow bottoms along the West Fork of the Madison.

Alternative 1 proposes to keep approximately 273,991 acres or 79% of general big game winter range on NFS lands open to winter motorized travel in the Gravelly Landscape. This leaves approximately 71,484 acres or 21% of general big game winter range on NFS lands in a non-motorized classification in this Landscape. Currently approximately 12% of the Landscape acreage receives regular use, 2% receives intermittent use, and 66% of the acreage is seldom to never, used by OSVs. According to the OSV use map (Figure 9), the southern part of the Landscape has fairly regular cross county use but the majority of the Landscape is accessed by a series of routes, generally on main roads, with cross country use where they join in the center. The winter motorized travel is both within high and moderate value winter range. Although there may be some elk that stay on the forest fringes, many of them winter off the forest in the Robb Ledford Wildlife Management Area to west, the Wall Creek Wildlife Management Area to the east and the Red Rocks Wildlife Refuge to south and on private land (Pers. com. MFWP 2016). Although there is a slight chance that individual elk could be disturbed/displaced by OSV travel, it has not been identified as an issue for the elk population in the Gravelly Landscape (Pers. com. MFWP 2016). The local MFWP is not seeing issues with mule deer and OSV travel in this Landscape either (Pers. com. MFWP 2016). Moose however, are the main big game species that could be affected by OSV use in this Landscape. As stated above, there is critical moose winter range both along the Ruby River and the West Fork of the Madison River. Both of these areas are adjacent to regularly used OSV routes, (main roads in both cases) (Pers. com. MFWP 2016). Research shows that although snowmobile traffic did not appear to alter moose activity significantly, did influence the behavior of moose positioned within 300 meters of a trail and did displace moose to less favorable habitats, although not completely out of riparian habitats (Colescott and Gillingham, 1998). The local MFWP biologist is seeing similar behavior by moose in both of these areas. Moose seem to habituate to OSV travel on the main routes fairly well as long as the OSVs stay out of the willow habitat. Along the Ruby River, this is not a problem as the terrain precludes OSV travel off the main road. However, along the West Fork of the Madison River there are snowmobiles in the willow stands and moose have been observed being moved out of this preferred habitat (Pers. com. MFWP 2016). As mentioned above, an education plan will be put into place to attempt to keep people out of the willow bottoms near the West Fork Madison River and reduce the potential effects to moose from OSVs. It is uncertain what the cost is to those individual moose being disturbed/displaced, but at this time,

the population is healthy and current recruitment is driving that health (Pers. comm. MFWP 2016).

Alternative 2 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 77% (267,121 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 23% (78,354 acres). Approximately 6,900 additional acres would be closed to winter motorized travel in the winter range in this Landscape. This would mainly be noticed in the Centennial Mountains; in an area of regular use. Although this would decrease the amount of regular cross county travel, the effects would be similar to Alternative 1 in that moose could still be affected by winter motorized travel in this Landscape, especially in the West Fork Madison River area. It is uncertain what the cost is to those individual moose being disturbed/displaced, but at this time, the population is healthy and current recruitment is driving that health (Pers. comm. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1 and 4.

Alternative 3 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 32% (110,938 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 68% (234,537 acres). This Alternative would close over 163,000 additional acres of the winter range in this Landscape to winter motorized travel; the most of all Alternatives. This Alternative would reduce potential effects to big game winter range by closing some of the regular and intermittent use trails and cross country travel areas. Effects to elk and mule deer are unlikely (Pers. com. MFWP 2016). Although OSV use would decrease greatly on the winter range, moose could still be affected by winter motorized travel in this Landscape especially in the West Fork Madison River area. It is uncertain what the cost is to those individual moose being disturbed/displaced, but at this time, the population is healthy and current recruitment is driving that health (Pers. comm. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4, 5 and 6 Modified.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on general big game winter range on NFS lands at 79% (273,991 acres). This conversely retains acres of general big game winter range on NFS lands in a non-motorized classification at 21% (71,484 acres). The effects of this Alternative are identical to Alternative 1. Effects to elk and mule deer are unlikely (Pers. com. MFWP 2016). Although OSV use would decrease greatly on the winter range, moose could still be affected by winter motorized travel in this Landscape especially in the West Fork Madison River area. It is uncertain what the cost is to those individual moose being disturbed/displaced, but at this time, the population is healthy and current recruitment is driving that health (Pers. comm. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use.

Alternative 5 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 50% (172,181 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 50% (173,294 acres). This alternative would close half, approximately 101,800 additional acres, of winter

range in this Landscape to winter motorized travel. Most of the area to be closed is in country that does not receive OSV use. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. The effects of this Alternative are similar to Alternatives 1, 2 and 4. Effects to elk and mule deer are unlikely (Pers. com. MFWP 2016). Although OSV use would decrease greatly on the winter range, moose could still be affected by winter motorized travel in this Landscape especially in the West Fork Madison River area. It is uncertain what the cost is to those individual moose being disturbed/displaced, but at this time, the population is healthy and current recruitment is driving that health (Pers. comm. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2 and 4.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 50% (172,157 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 50% (173,318 acres). Effects of this Alternative would be identical to Alternative 5. Although this Alternative would close half the winter range in this Landscape to winter motorized travel, most of the area to be closed is in country that does not receive OSV use. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. The effects of this Alternative are similar to Alternatives 1, 2, 4 and 5. Effects to elk and mule deer are unlikely (Pers. com. MFWP 2016). Although OSV use would decrease greatly on the winter range, moose could still be affected by winter motorized travel in this Landscape especially in the West Fork Madison River area. It is uncertain what the cost is to those individual moose being disturbed/displaced, but at this time, the population is healthy and current recruitment is driving that health (Pers. comm. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4 and 5.

Bighorn Sheep

Alternative 1 would keep approximately 3,920 acres or 28% of bighorn sheep winter range on NFS lands open to winter motorized travel in the Gravelly Landscape. This leaves approximately 10,045 acres or 72% of bighorn sheep winter range on NFS lands in a non-motorized classification in this Landscape. The Ruby River Road, which is not a Forest Service road, is within this bighorn sheep winter range. This road it utilized year round. Bighorn sheep in this area are habituated to traffic on this road. During the winter, this road is plowed through the sheep range. Although designated as open on the OSV use map (Figure 9), there is no cross country travel in bighorn sheep winter range (Pers. com. MFWP 2016). Other than habituation from existing yearlong traffic, there are no other anticipated effects to bighorn sheep from OSV travel in the Greenhorn Mountains (Pers. com. MFWP 2016). Additionally, the Bighorn Conservation Strategy did not identify OSV use on the as a management challenge for the bighorn sheep herd in the Gravelly Landscape (Pers. com. MFWP, 2016).

Alternative 2 proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 15% (2,072 acres). Conversely, this increases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 85% (11,894 acres). Although this alternative closes approximately 1,800 more acres of winter range to winter

motorized travel, the effects of this Alternative are identical to Alternative 1. Other than habituation from existing yearlong traffic, there are no anticipated effects to bighorn sheep from OSV travel in the Greenhorn Mountains (Pers. com. MFWP 2016). Additionally, the Bighorn Conservation Strategy did not identify OSV use as a management challenge for the bighorn sheep herd in the Gravelly Landscape (Pers. com. MFWP, 2016). Although no effects to bighorn sheep are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1 and 4.

Alternative 3 proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 12% (1,680 acres). Conversely, this increases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 88% (12,285 acres). Although this alternative closes approximately 2,200 more acres of winter range to winter motorized travel, the effects of this Alternative are identical to Alternative 1 and 2. Other than habituation from existing yearlong traffic, there are no anticipated effects to bighorn sheep from OSV travel in the Greenhorn Mountains (Pers. com. MFWP 2016). Additionally, the Bighorn Conservation Strategy did not identify OSV use as a management challenge for the bighorn sheep herd in the Gravelly Landscape (MFWP, 2010). Although no effects to bighorn sheep are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2, 4, 5 and 6 Modified.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on bighorn sheep winter range on NFS lands at 28% (3,920 acres). This conversely retains acres of bighorn sheep winter range on NFS lands in a non-motorized classification at 72% (10,045 acres). Effects from this Alternative are exactly like Alternatives 1, 2 and 3. Other than habituation from existing yearlong traffic, there are no anticipated effects to bighorn sheep from OSV travel in the Greenhorn Mountains (Pers. com. MFWP 2016). Additionally, the Bighorn Conservation Strategy did not identify OSV use as a management challenge for the bighorn sheep herd in the Gravelly Landscape (MFWP, 2010).

Alternative 5 proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 14% (1,918 acres). Conversely, this increases the acres of big bighorn sheep winter range on NFS lands in a non-motorized classification to 86% (12,047 acres). Although this alternative closes approximately 2,000 more acres of winter range to winter motorized travel, the effects of this Alternative are identical to Alternative 1, 2, 3 and 4. Other than habituation from existing yearlong traffic, there are no anticipated effects to bighorn sheep from OSV travel in the Greenhorn Mountains (Pers. com. MFWP 2016). Additionally, the Bighorn Conservation Strategy did not identify OSV use as a management challenge for the bighorn sheep herd in the Gravelly Landscape (MFWP, 2010). Although no effects to bighorn sheep are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2 and 4.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 14% (1,917 acres). Conversely, this increases the acres of big bighorn sheep winter range on NFS lands in a non-motorized classification to 86% (12,048 acres). Effects of this Alternative are identical to Alternative 1, 2, 3, 4 and 5. Other than habituation from existing yearlong traffic, there are no anticipated effects to bighorn sheep

from OSV travel in the Greenhorn Mountains (Pers. com. MFWP 2016). Additionally, the Bighorn Conservation Strategy did not identify OSV use as a management challenge for the bighorn sheep herd in the Gravelly Landscape (MFWP, 2010). Although no effects to bighorn sheep are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2, 4 and 5.

Mountain Goat

Alternative 1 proposes to keep approximately 17,337 acres or 49% of mountain goat winter range on NFS lands open to winter motorized travel in the Gravelly Landscape. This leaves approximately 17,891 acres or 51% of mountain goat winter range on NFS lands in a non-motorized classification in this Landscape. Although almost half of this winter range in the Snowcrest Mountains is open to OSV use, due to the terrain, there is no use in this area (Pers. com. MFWP 2016). There are no anticipated effects to mountain goats from OSV use in the Gravelly Landscape (Pers. com. MFWP 2016).

Alternative 2 proposes to retain the existing areas open to winter motorized travel on mountain goat winter range on NFS lands at 49% (17,337 acres). This conversely retains acres of mountain goat winter range on NFS lands in a non-motorized classification at 51% (17,891 acres). This alternative is identical to Alternative 1. No effects are anticipated to mountain goats in the Snowcrest winter range area of the Gravelly Landscape.

Alternative 3 proposes to keep 0% of the mountain goat winter range open to winter motorized travel in the Gravelly Landscape. All of the mountain goat winter range in this Landscape would remain in a non-motorized classification. There are no anticipated effects to mountain goats from OSV use in the Gravelly Landscape (Pers. com. MFWP 2016). Although no effects to mountain goats are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2 and 4.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on mountain goat winter range on NFS lands at 49% (17,337 acres). This conversely retains acres of mountain goat winter range on NFS lands in a non-motorized classification at 51% (17,891 acres). This alternative is identical to Alternatives 1 and 2. There are no anticipated effects to mountain goats from OSV use in the Gravelly Landscape (Pers. com. MFWP 2016).

Alternative 5 proposes to keep 0% of the mountain goat winter range open to winter motorized travel in the Gravelly Landscape. All of the mountain goat winter range in this Landscape would remain in a non-motorized classification. There are no anticipated effects to mountain goats from OSV use in the Gravelly Landscape (Pers. com. MFWP 2016). Although no effects to mountain goats are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2 and 4.

Alternative 6 Modified proposes to keep 0% of the mountain goat winter range open to winter motorized travel in the Gravelly Landscape. All of the mountain goat winter range in this Landscape would remain in a non-motorized classification. There are no anticipated effects to mountain goats from OSV use in the Gravelly Landscape (Pers. com. MFWP 2016). Although no effects to mountain goats are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2 and 4.

Jefferson River Landscape

The Jefferson River Landscape comprised of NFS lands, private, state and other federal lands, has approximately 604,130 acres of general big game winter range and 87,613 acres of bighorn sheep winter range as identified by MFWP. Of those figures, only 19 percent (112,077 acres) of general big game and 3 percent (2,767 acres) of bighorn sheep winter ranges are on NFS lands. Please refer to Table 14 and Table 16 for existing general big game and bighorn sheep winter range acres and percentages for all ownerships and by BDNF Landscape. The discussions that follow, focus on the NFS lands only, but it is important to remember that NFS lands make up a very small portion of both general big game and bighorn sheep winter ranges.

There are parts of three hunt districts within this Landscape, 340, 350, 370. The combined population objective is 1,600 animals. As of 2015, there were 2,557 animals observed (exceeding objective) in the three hunt districts combined. The combined mule deer long term average (LTA) in the Jefferson River Landscape is 2,461 and the 2015 estimated population was 2,589, above the LTA (Pers. com. MFWP 2016). Although there are moose and winter range in the Highlands Mountains of this Landscape, this population has not been surveyed. Although official MFWP identified antelope winter range in the southern tip of the landscape, once the ground is snow covered, the antelope move off forest (Pers. com. MFWP 2016). The bighorn sheep hunt district 340 is within the Jefferson River and Pioneer Landscapes with an estimated 75 animals. This is up from an estimated 54 animals in 1972, but below the objective of 125. This population has been supplemented many times since a major die-off in the 1990's; the latest transplant was December 2014. Since the die-off, "total counts of observed bighorn sheep have remained below 50 animals, despite transplant efforts (MFWP 2010). Although not officially mapped, there is a small mountain goat population (<12) that persist in the upper elevations of the Highlands (Pers. com. MFWP 2016). There is no white-tailed deer winter range in the Jefferson River Landscape.

See Figure A- 6 through Figure A- 11 for general big game winter range maps by Landscape and by alternative. See Figure B- 2 through Figure B- 7 for bighorn sheep winter range maps by Landscape and by alternative.

General Big Game

Alternative 1 proposes to keep approximately 112,050 acres or 99.98% of general big game winter range on NFS lands open to winter motorized travel in the Jefferson River Landscape. This leaves approximately 27 acres or 0.02% of general big game winter range on NFS lands in a non-motorized classification in this Landscape. According to the use map, there are no areas in this Landscape regularly used for winter motorized travel. Only approximately 13% is used intermittently and 87% is used by OSVs seldom to none. None of this Landscape is closed to winter motorized travel. This Landscape is basically split by interstate 90, south is the Highlands area and north is the Whitetail/Pipestone area and the Bull Mountains. The areas of intermediate use by OSVs in this Landscape on the north side are the Delmoe Lake and Whitetail Reservoir areas, both outside of big game winter range. Although not identified as a use area on the OSV use map, Hadley Park is the only place on the north side of the Landscape where there could potentially be effects to elk from OSV travel. There is some OSV use and

there are some elk that winter in this area. At this time it is not negatively affecting these elk, however the potential exists (Pers. com. MFWP 2016). On the south half of this Landscape (Highlands), the intermittent use occurs east and of Burton Park along the continental divide and south of Table Mountain. Elk and moose would be the only species most likely to be possibly disturbed/displaced by intermittent winter motorized travel in the Highlands. Although, in moose winter range, the local biologist is not seeing effects to moose from OSV travel. Elk in this area mostly winter off the forest to the west on windswept ridges where there is very little snow. The elk population in this Landscape currently is well over the desired objective so although unlikely there may be effects to individuals, OSV use is not affecting the elk population in this area (Pers. com. MFWP 2016). OSV use has also not been identified as an issue for the mule deer or moose populations in this area (Pers. com. MFWP 2016).

Alternative 2 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 86% (96,439 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 14% (15,638 acres). Approximately 15,600 additional acres of the winter range would be closed to winter motorized use under this Alternative. This closure area would benefit the elk and moose that may be on the winter range in this Landscape as the large area east of Burton Park and a large portion of the area south of Table Mountain would be closed to winter motorized travel. Although this Alternative closes intermittent use in large areas, there is still a chance, although greatly lessened, that elk or moose on the winter range in the Highlands could be disturbed/displaced. Elk in this Landscape currently exceed objectives so although there may be effects to individuals, OSV use is not affecting the elk population in this area (Pers. com. MFWP 2016). OSV use has also not been identified as an issue for the mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1 and 4.

Alternative 3 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 58% (65,440 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 42% (46,637 acres). Approximately 46,600 additional acres of the winter range would be closed to winter motorized use under this Alternative. A large portion of the winter range north of I-90 would be closed to OSVs but the winter range in that area is currently not being used by snowmobiles. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. Although the amount of winter range closed in this Alternative is much greater than in Alternative 2, the effects to the Highlands are virtually identical as the same OSV use areas are closed. Elk in this Landscape currently exceed objectives so although there may be effects to individuals, OSV use is not affecting the elk population in this area (Pers. com. MFWP 2016). OSV use has also not been identified as an issue for the mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2 and 4.

Alternative 4 proposes to open all but 2 acres of the general big game winter range on NFS lands open to winter motorized travel in the Jefferson River Landscape. This leaves 2 acres of general big game winter range on NFS lands in a non-motorized classification in this Landscape.

This alternative closes the least acres on big game on the winter range. The effects from this Alternative are identical to Alternative 1. The elk population in this Landscape currently is well over the desired objective so although there may be effects to individuals, OSV is not affecting the elk population in this area (Pers. com. MFWP 2016). OSV use has also not been identified as an issue for the mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use, it would potentially increase them.

Alternative 5 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 58% (65,448 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 42% (46,629 acres). Approximately 46,600 additional acres of the winter range would be closed to winter motorized use under this Alternative. The effects of this Alternative would be identical to Alternative 3. Although there is still a slight chance for elk and moose to be disturbed/displaced in this Alternative, elk in this Landscape, currently exceed objectives. There may be effects to individuals but OSV use is not affecting the elk population in this area (Pers. com. MFWP 2016). OSV use has also not been identified as an issue for the mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2 and 4.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 47% (52,441 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 53% (59,636 acres). Approximately 59,600 additional acres of the winter range would be closed to winter motorized use under this Alternative. This alternative closes the most acres for big game on the winter range. Effects from this Alternative are basically identical to Alternatives 2, 3, and 5. The difference would be additional closures in winter range areas that receive seldom to no use by OSVs. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. Although there is still a slight chance for elk and moose to be disturbed/displaced in this Alternative, the elk in this Landscape currently exceed objectives. There may be effects to individuals but OSV use is not affecting the elk population in this area (Pers. com. MFWP 2016). OSV use has also not been identified as an issue for the mule deer or moose populations in this area (Pers. com. MFWP 2016). This alternative would further reduce potential winter range effects on general big game winter range from OSV travel than Alternatives 1, 2, 3, 4 and 5.

Bighorn Sheep

Alternatives 1 – 6 Modified propose to keep all the bighorn sheep winter range (2,767 acres) on NFS lands open to winter motorized travel in the Jefferson River Landscape. None of the bighorn sheep winter range on NFS lands, only 3% of the entire winter range, would be in a non-motorized classification in this Landscape. Although all of the bighorn sheep winter range in this Landscape is open to winter motorized travel, it is in an area that receives little to no use. According to the local biologist the bighorn sheep travel to windswept ridges off forest to winter. There are no anticipated effects to this bighorn sheep herd (Pers. com. MFWP 2016). Additionally, MFWP has not identified snowmobile use on the Forest as a management

challenge for bighorn sheep herds in the Jefferson River Landscape (MFWP, 2010).

Mountain Goat

Although there is general range for mountain goats within the Lima Tendoy Landscape, it is not used as winter range and will not be further discussed.

Lima Tendoy Landscape

The Lima Tendoy Landscape comprised of NFS lands, private, state and other federal lands, has approximately 782,702 acres of general big game winter range and 66,537 acres of bighorn sheep winter range as identified by MFWP. Of those figures, only 32 percent (253,887 acres) of general big game and 38 percent (25,007 acres) of bighorn sheep winter ranges are on NFS lands. Please refer to Table 14 and Table 16 for existing general big game and bighorn sheep winter range acres and percentages for all ownerships and by BDNF Landscape. The discussions that follow, focus on the NFS lands only, but it is important to remember that NFS lands make up a small portion of both general big game and bighorn sheep winter ranges.

There are two hunt districts, 300, 302 in this Landscape. The population objective for 300 is 800 elk and as of 2015, there were an estimated 918 animals (exceeding objective). The population objective for 302 is 625 elk and as of 2015, there were an estimated 1,421 animals (exceeding objective). Mule deer, moose, and antelope also have winter range in this Landscape. The mule deer long term average (LTA) in HD 300 is 604 and the 2015 estimated population was 530, below the LTA while the LTA in HD 302 is 701 and the 2015 estimated population was 882, above the LTA. According to the local MFWP biologist, the mule deer population is stable to increasing in these areas (Pers. com. MFWP 2016). Although there are moose and winter range in this Landscape, this population has not been surveyed. Although there is antelope winter range in this landscape, antelope is not a significant big game species in this Landscape (Pers. com. MFWP 2016) and will not be analyzed further. There is neither white-tailed deer nor mountain goat winter range in the Lima Tendoy Landscape. The bighorn sheep herd in the Lima Tendoy Landscape has an estimated 50 animals at this time however is currently diseased and is being removed. MFWP thinks it will likely take until 2017 before the entire herd is removed (pers. com. MFWP 2015). There are plans to reintroduce a new herd, but it likely be at least 2017 before that happens (Pers. com. MFWP 2016).

See Figure A- 6 through Figure A- 11 for general big game winter range maps by Landscape and by alternative. See Figure B- 2 through Figure B- 7 for bighorn sheep winter range maps by Landscape and by alternative.

General Big Game

Alternative 1 proposes to keep approximately 204,777 acres or 81% of general big game winter range on NFS lands open to winter motorized travel in the Lima Tendoy Landscape. This leaves approximately 49,111 acres or 19% of general big game winter range on NFS lands in a non-motorized classification in this Landscape. Much of this Landscape is within big game winter range for elk, moose, mule deer and antelope. Although a large percentage of this Landscape is open to winter motorized travel, the area around Goldstone Pass is the only area that receives

regular use. The rest of the Landscape receives little to no winter motorized use. There is winter range for moose and elk in the area with regular use by OSVs therefore there could be disturbance/displacement if big game are on the winter range at the same time as the winter motorized use. Due to little to no winter motorized use, it is extremely unlikely that big game would be affected in the rest of the Landscape. In this area elk objectives are currently exceeded; although there may be some displacement/disruption to individual animals, current winter motorized travel is not negatively affecting the elk populations in the Lima Tendoy Landscape and no declines in the moose population due to OSV use in this area has been identified (Pers. com. MFWP 2016).

Alternative 2 proposes to retain the existing areas open to winter motorized travel on general big game winter range on NFS lands at 81% (204,777 acres). This conversely retains acres of general big game winter range on NFS lands in a non-motorized classification at 19% (49,111 acres). The effects from this Alternative are identical to Alternative 1; potential displacement of elk and moose in the Goldstone Pass area and unlikely that big game would be affected in the rest of the Landscape. In this area elk objectives are currently exceeded; although there may be some displacement/disruption to individual animals, current winter motorized travel is not negatively affecting the elk populations in the Lima Tendoy Landscape and no declines in the moose population due to OSV use in this area has been identified (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use.

Alternative 3 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 42% (107,320 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 58% (146,568 acres). This alternative closes the most areas to OSV travel on big game winter range in this Landscape. Over half, an additional 97,500 acres of winter range on NFS lands would be closed to winter motorized use. Most of the additional closures would be in the southern half of the Landscape in areas that receive seldom to no use by OSVs. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. The area around Goldstone Pass, the only area that receives regular use, would still be open to winter motorized travel. If there are moose and elk in the area at times of winter motorized travel there could be disturbance/displacement. Due to little to no winter motorized use, it is extremely unlikely that big game would be affected in the rest of the Landscape. In this area elk objectives are currently exceeded; although there may be some displacement/disruption to individual animals, current winter motorized travel is not negatively affecting the elk populations in the Lima Tendoy Landscape and no declines in the moose population due to OSV use in this area has been identified (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4, 5 and 6 Modified.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on general big game winter range on NFS lands at 81% (204,777 acres). This conversely retains acres of general big game winter range on NFS lands in a non-motorized classification at 19% (49,111 acres). The effects from this Alternative are identical to Alternatives 1 and 2; potential displacement of elk and moose in the Goldstone Pass area and unlikely that big game would be

affected in the rest of the Landscape. In this area elk objectives are currently exceeded; although there may be some displacement/disruption to individual animals, current winter motorized travel is not negatively affecting the elk populations in the Lima Tendoy Landscape and no declines in the moose population due to OSV use in this area has been identified (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use.

Alternative 5 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 62% (156,266 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 38% (97,621 acres). In this Alternative an additional 48,500 acres of winter range would be closed to winter motorized use. Most of the additional closures would be in the southern half of the Landscape in areas that receive seldom to no use by OSVs. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. The area around Goldstone Pass, the only area that receives regular use, would still be open to winter motorized travel. If there are moose and elk in the area at times of winter motorized travel there could be disturbance/displacement. Due to little to no winter motorized use, it is extremely unlikely that big game would be affected in the rest of the Landscape. In this area elk objectives are currently exceeded; although there may be some displacement/disruption to individual animals, current winter motorized travel is not negatively affecting the elk populations in the Lima Tendoy Landscape and no declines in the moose population due to OSV use in this area has been identified (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2 and 4.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 53% (134,754 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 47% (119,134 acres). In this Alternative an additional 70,000 acres of winter range would be closed to winter motorized use. Similar to Alternative 5, most of the additional closures would be in the southern half of the Landscape in areas that receive seldom to no use by OSVs. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. The area around Goldstone Pass, the only area that receives regular use, would still be open to winter motorized travel. If there are moose and elk in the area at times of winter motorized travel there could be disturbance/displacement. Due to little to no winter motorized use, it is extremely unlikely that big game would be affected in the rest of the Landscape. In this area elk objectives are currently exceeded; although there may be some displacement/disruption to individual animals, current winter motorized travel is not negatively affecting the elk populations in the Lima Tendoy Landscape and no declines in the moose population due to OSV use in this area has been identified (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4 and 5.

Bighorn Sheep

The alternative analysis must take into account that the bighorn sheep herd in the Lima Tendoy Landscape is currently diseased and is being removed. There is not expected to be a replacement herd until 2017 at the earliest (Pers. com. MFWP 2016).

Alternative 1 proposes to keep approximately 18,718 acres or 75% of bighorn sheep winter range on NFS lands open to winter motorized travel in the Lima Tendoy Landscape. This leaves approximately 6,289 acres or 25% of bighorn sheep winter range on NFS lands in a non-motorized classification in this Landscape. This Landscape has seldom to no OSV travel as there is not enough snow to use OSVs. Bighorn sheep are not expected to be negatively affected by winter motorized travel in this Landscape (Pers. com. MFWP 2016). MFWP has not identified snowmobile use on the Forest as a management challenge for the bighorn sheep herd in the Lima Tendoy Landscape (Pers. com. MFWP 2016).

Alternative 2 proposes to retain the existing areas open to winter motorized travel on bighorn sheep winter range on NFS lands at 75% (18,718 acres). This conversely retains acres of bighorn sheep winter range on NFS lands in a non-motorized classification at 25% (6,289 acres). This Landscape has seldom to no winter motorized travel as there is not enough snow to use OSVs. Bighorn sheep are not expected to be negatively affected by winter motorized travel in this Landscape (Pers. com. MFWP 2016). MFWP has not identified snowmobile use on the Forest as a management challenge for the bighorn sheep herd in the Lima Tendoy Landscape (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on bighorn sheep winter range from OSV use.

Alternative 3 proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 23% (5,848 acres). Conversely, this increases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 77% (19,159 acres). This alternative would close the most acres to OSV travel on bighorn sheep winter range in the Landscape. However, this Landscape has seldom to no winter motorized travel as there is not enough snow to use OSVs. Bighorn sheep are not expected to be negatively affected by winter motorized travel in this Landscape (Pers. com. MFWP 2016). MFWP has not identified snowmobile use on the Forest as a management challenge for the bighorn sheep herd in the Lima Tendoy Landscape (Pers. com. MFWP 2016). This alternative would further reduce potential effects on bighorn sheep winter range from OSV travel than Alternatives 1, 2, 4, 5 and 6 Modified.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on bighorn sheep winter range on NFS lands at 75% (18,718 acres). This conversely retains acres of bighorn sheep winter range on NFS lands in a non-motorized classification at 25% (6,289 acres). This Landscape has seldom to no winter motorized travel as there is not enough snow to use OSVs. Bighorn sheep are not expected to be negatively affected by winter motorized travel in this Landscape (Pers. com. MFWP 2016). MFWP has not identified snowmobile use on the Forest as a management challenge for the bighorn sheep herd in the Lima Tendoy Landscape (Pers. com. MFWP, 2016). This alternative would not reduce the potential effects on bighorn sheep winter range from OSV use, it would potentially increase them.

Alternative 5 proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 63% (15,643 acres). Conversely, this increases the acres bighorn sheep winter range on NFS lands in a non-motorized classification to 37% (9,364 acres). This Landscape has seldom to no winter motorized travel as there is not enough snow to use OSVs. Bighorn sheep are not expected to be negatively affected by winter motorized travel in this Landscape (Pers. com. MFWP 2016). MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herd in the Lima Tendoy Landscape (Pers. com. MFWP, 2016). This alternative would further reduce potential effects on bighorn sheep winter range from OSV travel than Alternatives 1, 2 and 4.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 63% (15,643 acres). Conversely, this increases the acres bighorn sheep winter range on NFS lands in a non-motorized classification to 37% (9,364 acres). This Landscape has seldom to no winter motorized travel as there is not enough snow to use OSVs. Bighorn sheep are not expected to be negatively affected by winter motorized travel in this Landscape (Pers. com. MFWP 2016). MFWP has not identified snowmobile use on the Forest as a management challenge for the bighorn sheep herd (Pers. com. MFWP, 2016). This alternative would further reduce potential effects on bighorn sheep winter range from OSV travel than Alternatives 1, 2 and 4.

Mountain Goat

Although there is general range identified for mountain goats within the Lima Tendoy Landscape, the winter range areas for this population have not been identified by MFWP. According to the local MFWP biologist, these mountain goats winter in extremely steep areas that cannot be traversed by OSVs. No effects to mountain goats in the Lima Tendoy Landscape from OSV travel are anticipated under any Alternative (Pers. com. MFWP 2016).

Madison Landscape

The Madison Landscape comprised of NFS lands, private, state and other federal lands, has approximately 255,356 acres of general big game winter range, 30,851 acres of bighorn sheep winter range and 78,729 acres of mountain goat winter range as identified by MFWP. Of those figures, 36 percent (91,391 acres) of general big game, 67 percent (20,686 acres) of bighorn sheep, and 56 percent (78,729 acres) of mountain goat winter ranges are on NFS lands. Please refer to Table 14 and Table 16 for existing general big game, bighorn sheep and mountain goat winter range acres and percentages for all ownerships and by BDNF Landscape. The discussions that follow, focus on the NFS lands only, but it is important to remember that NFS lands make up a small portion of the general big game winter range. It is also important to remember that 33 percent of the bighorn sheep winter range and 44 percent of the mountain goat winter range is also comprised of private, state and other federal lands.

There are three hunt districts, 311, 360, 362 in this Landscape. The combined population objective for this Landscape is 7,200 elk and as of 2015, there were an estimated 6,659 animals (below objective). Individually, hunt districts 311 and 362 are at objective whereas hunt district 362 is below objectives. Mule deer and moose also have winter range in this Landscape. The

mule deer long term average (LTA) in HD 311 is 1,563 and the 2015 estimated population was 1,327, below the LTA, while the LTA in HD 360 is 898 and the 2015 estimated population was 956, above the LTA, and lastly, the LTA in HD 362 is 146 and the 2015 estimated population was 288, above the LTA (Pers. com. MFWP 2016). Although there are moose and winter range in this Landscape, this population has not been surveyed. There is neither white-tailed deer nor antelope winter range in the Madison Landscape. The bighorn sheep hunt districts 301 and 302 are within the Madison Landscape with an estimated 165 and 280 animals respectively (2015). HD 301 is within the objective of 120-180, while HD 302 is above the objective of 80-120. The original estimates from 1980 were 78 animals in each unit. Parts of three mountain goat hunt districts are in this Landscape, 324, 325, and 326. Based on the survey averages of 66, 33, and 20, the population seems fairly stable at 71, 41, and 22 animals respectively (Pers. com. MFWP 2016). It is important to note that most of the Madison Landscape is within the Lee Metcalf Wilderness.

See Figure A- 6 through Figure A- 11 for general big game winter range maps by Landscape and by alternative. See Figure B- 2 through Figure B- 7 for bighorn sheep winter range maps by Landscape and by alternative. See Figure C- 2 through Figure C- 7 for mountain goat winter range maps by Landscape and by alternative.

General Big Game

Alternative 1 proposes to keep approximately 8,529 acres or 9% of general big game winter range on NFS lands open to winter motorized travel in the Madison Landscape. This leaves approximately 82,862 acres or 91% of general big game winter range on NFS lands in a non-motorized classification in this Landscape. Most of this Landscape is within the Lee Metcalf Wilderness and is already closed to motorized use. There is only a small portion of the northern area open to winter motorized use that is not private land. According to both recreation specialists on the Forests and the local MFWP biologist (Pers. com. 2016), there is no OSV travel in this area and therefore no effects to big game populations in this Landscape are expected from this use.

Alternative 2 proposes to keep 0% of the general big game winter range areas open to winter motorized travel in the Madison Landscape. Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 100% (91,391 acres). There would be no effects to big game winter range from winter motorized travel in this Alternative. Although no effects to general big game are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1 and 4.

Alternative 3 proposes to keep 0% of the general big game winter range areas on NFS lands open to winter motorized travel in the Madison Landscape. Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 100% (91,391 acres). As in Alternative 2, there would be no effects to big game winter range from winter motorized travel in this Alternative. Although no effects to general big game are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1 and 4.

Although the percentage of winter motorized travel didn’t change for the Madison Landscape

Alternative 4 proposes to increase slightly the areas open to winter motorized travel on general big game winter range to 8,536 acres; 9% of the winter range on NFS lands. Conversely, this decreases the acres of general big game winter range in a non-motorized classification to 82,855 acres but it is still 91% of the winter range on NFS lands. The effects of this Alternative are exactly the same as Alternative 1. Most of this Landscape is within the Lee Metcalf Wilderness and is already closed to motorized use. There is only a small portion of the northern area open to winter motorized use that is not private land. According to both recreation specialists on the Forests and the local MFWP biologist- there is no OSV travel in this area and therefore no effects to big game populations in this Landscape (Pers. com. MFWP 2016).

Alternative 5 proposes to keep 0% of the general big game winter range areas on NFS lands open to winter motorized travel in the Madison Landscape. Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 100% (91,391 acres). As in Alternatives 2 and 3, there would be no effects to big game winter range from winter motorized travel in this Alternative. Although no effects to general big game are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1 and 4.

Alternative 6 Modified proposes to keep 0% of the general big game winter range areas on NFS lands open to winter motorized travel in the Madison Landscape. Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 100% (91,391 acres). As in Alternatives 2, 3, and 5, there would be no effects to big game winter range from winter motorized travel in this Alternative. Although no effects to general big game are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1 and 4.

Bighorn Sheep

Alternatives 1 – Alt 6 Modified propose to keep 0% of the bighorn sheep winter range (20,686 acres) on NFS lands open to winter motorized travel in the Madison Landscape. All of the bighorn sheep winter range on NFS lands in this Landscape would remain in a non-motorized classification. There would be no effects to bighorn sheep from winter Motorized travel from any of the proposed Alternatives.

Mountain Goat

Alternative 1 proposes to keep approximately 6,895 acres or 9% of mountain goat winter range on NFS lands open to winter motorized travel in the Madison Landscape. This leaves approximately 71,834 acres or 91% of mountain goat winter range on NFS lands in a non-motorized classification in this Landscape. There are two winter range areas within the Madison Landscape, north, and south. The southern are is within the Lee Metcalf Wilderness and is already closed to motorized use. There is only a small portion of the northern area open to winter motorized use that is not private land. According to the local MFWP biologist, there is no OSV travel and no effects to either mountain goat population from winter motorized travel in the Madison Landscape (pers. com. MFWP 2016).

Alternative 2 proposes to decrease areas open to winter motorized travel on mountain goat

winter range on NFS lands to 2% (1,918 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 98% (76,812 acres). There are two winter range areas within the Madison Landscape, north and south. The southern are is within the Lee Metcalf Wilderness and is already closed to motorized use. There is only a small portion of the northern area open to winter motorized use that is not private land. Alternative 2 would close this small section to winter OSV travel. However, as stated before according to the local MFWP biologist there is no OSV travel and no effects to either mountain goat population from winter motorized travel in the Madison Landscape (pers. com. MFWP 2016). Although no effects to mountain goats are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1 and 4.

Alternative 3 proposes to keep 0% of the mountain goat winter range (78,729 acres) on NFS lands open to winter motorized travel in the Madison Landscape. All of the mountain goat winter range on NFS lands in this Landscape would remain in a non-motorized classification. There would be no anticipated effects to mountain goats from winter motorized travel in this Alternative. Although disturbance is possible, MFWP biologists queried, did not identify instances where winter motorized travel is affecting any of the mountain goat populations on the BDNF (pers. com. MFWP 2015). Although no effects to mountain goats are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2, 4, 5 and 6 Modified.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on mountain goat winter range on NFS lands at 9% (6,895 acres). This conversely retains acres of mountain goat winter range on NFS lands in a non-motorized classification at 91% (71,834 acres). This alternative is the same as Alternative 1. According to MFWP biologists there is no OSV travel and no effects to either mountain goat population from winter motorized travel in this Landscape. Although disturbance is possible, MFWP biologists queried, did not identify instances where winter motorized travel is affecting any of the mountain goat populations on the BDNF (pers. com. MFWP 2015).

Alternative 5 proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 0.1% (90 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 99.9% (78,639 acres). As almost all of the mountain goat winter range in this Landscape would remain in a non-motorized classification, there would be no anticipated effects from this Alternative. Although disturbance is possible, MFWP biologists queried, did not identify instances where winter motorized travel is affecting any of the mountain goat populations on the BDNF (pers. com. MFWP 2015). Although no effects to mountain goats are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2, 4 and 6 Modified.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 1% (964 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 99% (77,765 acres). The only acres of winter range available to winter motorized in this Landscape are on private land. According to MFWP biologists there is no OSV travel and no effects to either

mountain goat population from winter motorized travel in this Landscape. Although disturbance is possible, MFWP biologists queried, did not identify instances where winter motorized travel is affecting any of the mountain goat populations on the BDNF (pers. com. MFWP 2015). Although no effects to mountain goats are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2 and 4.

Pioneer Landscape

The Pioneer Landscape comprised of NFS lands, private, state and other federal lands, has approximately 631,883 acres of general big game winter range, 83,492 acres of bighorn sheep winter range and 65,988 acres of mountain goat winter range as identified by MFWP. Of those figures, only 47 percent (297,937 acres) of general big game, 58 percent (48,414 acres) of bighorn sheep, and 66 percent (43,680 acres) of mountain goat winter ranges are on NFS lands. Please refer to Table 14 and Table 16 for existing general big game, bighorn sheep and mountain goat winter range acres and percentages for all ownerships and by BDNF Landscape. The discussions that follow, focus on the NFS lands only, but it is important to remember that NFS lands make up just under half of the general big game and just over a half of the bighorn sheep winter ranges. It is also important to remember that 34 percent of the mountain goat winter range is also comprised of private, state and other federal lands.

There are three elk hunt districts, 329, 331, 332 in this Landscape. The combined population objective for this Landscape is 2,950 elk and as of 2015, there were an observed 3,063 animals (exceeding objective). Individually, hunt district 331 is below objective, 332 is at objective and hunt district 329 is over objective. Refer to Table 18 for exact numbers. Mule deer and moose also have winter range in this Landscape. The combined mule deer long term average (LTA) in the Pioneer Landscape is 2,156 and the 2015 estimated population was 2,210, above the LTA. Refer to Table 19 for the specific numbers. (Pers. com. MFWP 2016). Although there are moose and winter range in the Pioneer Landscape, this population has not been surveyed. There is a small amount of antelope winter range on the very eastern edge of this Landscape. Although there is antelope winter range in this landscape, antelope is not a significant big game species in this Landscape (Pers. com. MFWP 2016) and will not be analyzed further. There no white-tailed deer winter range in the Pioneer Landscape. The bighorn sheep hunt district 340 is within the Pioneer and Jefferson River Landscapes with an estimated 75 animals. This is up from an estimated 54 animals in 1972, but below the objective of 125. This population has been supplemented many times since a major die-off in the 1990's; the latest transplant was December 2014 in the Maiden Rock area of the Pioneers. Since the die-off, "total counts of observed bighorn sheep have remained below 50 animals, despite transplant efforts (MFWP 2010). Mountain goat hunt district 312 is in this Landscape. According to the local MFWP biologist, the population are fairly stable at 100-150 animals (Pers. com. MFWP 2016).

See Figure A- 6 through Figure A- 11 for general big game winter range maps by Landscape and by alternative. See Figure B- 2 through Figure B- 7 for bighorn sheep winter range maps by Landscape and by alternative. See Figure C- 2 through Figure C- 7 for mountain goat winter range maps by Landscape and by alternative.

General Big Game

Alternative 1 proposes to keep approximately 256,381 acres or 86% of general big game winter range on NFS lands open to winter motorized travel in the Pioneer Landscape. This leaves approximately 41,556 acres or 14% of general big game winter range on NFS lands in a non-motorized classification in this Landscape. Elk and secondarily moose are the big game species that could potentially be affected by winter motorized travel in this Landscape. OSV use mainly occurs in the north half of the Landscape and in the West Pioneers. Approximately 49% of the Landscape (West Pioneers) receives regular use and 21% (north half of the East Pioneers) receives intermittent use. A small percent (22%) of the acreage is seldom, to never used, for winter motorized travel. That said, based on observations in the field, the local MFWP biologist believes the cross-country OSV use in the Pioneers as portrayed in Figure 9, is overestimated. This Landscape is heavily timbered which lends itself to OSVs remaining on major routes (generally roads) and some high elevation open areas. Most of these routes and high elevation open areas are mostly outside of elk, moose and mule deer winter ranges. When the snow is deep enough to utilize OSVs, these big game species have already moved into lower elevation winter range off the Forest (Pers. com. MFWP 2016). Additionally, a good portion of the elk and moose winter range is already closed to OSV travel in the West Pioneers. However, due to the regular use in the West Pioneers, there is a chance that if big game are on the winter range at the same time as motorized use is occurring they could be disturbed/displaced. The north half of the East Pioneers is utilized by OSVs on an intermittent basis while on the south half there is seldom to no use. As there is winter motorized use on the winter range in this area, although unlikely, there is a still a chance of elk and moose being disturbed/displaced by use. Although there may be effects to individuals, OSV is not affecting the elk population in this area and has not been identified as an issue for the mule deer or moose populations in the Pioneer Landscape (Pers. com. MFWP 2016).

Alternative 2 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 82% (243,031 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 18% (54,906 acres). This alternative would close approximately 13,300 more acres of the winter range to winter motorized travel. The closure area is mostly in the East Pioneers, in an area that receives seldom to no use but there are areas of intermittent and regular use that would be closed as well. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. Although reduced, as there is OSV use on the winter range in this Landscape, there is a still a chance, although unlikely, of elk and moose being disturbed/displaced by that use. Although there may be effects to individuals, OSV use is not affecting the elk population in this area and has not been identified as an issue for the mule deer or moose populations in the Pioneer Landscape (Pers. com. MFWP 2016). This alternative would further reduce potential on general big game winter range effects from OSV travel than Alternatives 1 and 4.

Alternative 3 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 68% (201,591 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 32% (96,346 acres). This alternative closes the most acres available to OSV use on big game winter range in

this Landscape. It would close approximately 54,800 more acres of the winter range to winter motorized travel. The closure areas are mostly in the East Pioneers in an area that receives seldom to no use but there are areas of intermittent and regular use that would be closed as well. Similar to Alternative 2, these closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. There are additional winter range closures in the West Pioneers as well. As there is still OSV use on the winter range in this Landscape, there is a still a chance, although unlikely, of elk and moose being disturbed/displaced by that use. Although there may be effects to individuals, OSV use is not affecting the elk population in this area and has not been identified as an issue for the mule deer or moose populations in the Pioneer Landscape (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4, 5 and 6.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on general big game winter range on NFS lands at 86% (256,381 acres). This conversely retains acres of general big game winter range on NFS lands in a non-motorized classification at 14% (41,556 acres). The effects of this Alternative are identical to Alternative 1. Although there may be effects to individuals, OSV is not affecting the elk population in this area and has not been identified as an issue for the mule deer or moose populations in the Pioneer Landscape (Pers. com. MFWP 2016). This alternative would not reduce potential effects on general big game winter range from OSV travel.

Alternative 5 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 77% (229,661 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 23% (68,276 acres). This alternative would close approximately 26,700 more acres of the winter range to winter motorized travel. The effects to big game from this Alternative, are very similar to Alternative 3. As there is still OSV use on the winter range in this Landscape, there is a still a chance of elk and moose being disturbed/displaced by that use. Although there may be effects to individuals, OSV use is not affecting the elk population in this area and has not been identified as an issue for the mule deer or moose populations in the Pioneer Landscape (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2 and 4.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 77% (229,745 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 23% (68,192 acres). The effects of this Alternative are identical to Alternative 5. As there is OSV use on the winter range in this Landscape, there is a still a chance of elk and moose being disturbed/displaced by that use. Although there may be effects to individuals, OSV use is not affecting the elk population in this area and has not been identified as an issue for the mule deer or moose populations in the Pioneer Landscape (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2 and 4.

Bighorn Sheep

Alternative 1 proposes to keep approximately 39,017 acres or 81% of bighorn sheep winter range on NFS lands open to winter motorized travel in the Pioneer Landscape. This leaves approximately 9,398 acres or 19% of bighorn sheep winter range on NFS lands in a non-motorized classification in this Landscape. The bighorn sheep winter range in this Landscape is in the East Pioneers, in the northern section. It is in an area that receives intermittent winter motorized travel, mainly due to the low snow depth many years. According to the local MFWP biologist, these bighorn sheep winter generally off forest, but also on the Forest/BLM/private interface. They are on peaks and slopes that preclude OSV travel. The 2015 winter survey found the bighorns in La Marche Gulch and on Sheep and Goat Mountains (Pers. com. MFWP 2016). MFWP is not seeing any effects to bighorn sheep from OSV travel in these areas. That said, there is OSV use identified in areas identified as bighorn sheep winter range and if bighorn sheep are in the area, although unlikely, at the same time as the motorized use, effects could be increased stress increased energy expenditures on these animals or displacement from preferred habitats on the winter range. Although these effects are possible, MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Pioneer Landscape (Pers. com. MFWP 2016).

Alternative 2 proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 79% (38,457 acres). Conversely, this increases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 21% (9,957 acres). In this Alternative, the area closed to winter motorized travel in this bighorn sheep winter range is increased by approximately 560 more acres. The areas closed in this Alternative are in areas bighorn sheep are generally not found. Effects from this Alternative would be identical to effects from Alternative 1. Although unlikely, effects could be possible, however MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Pioneer Landscape (Pers. com. MFWP 2016). Although effects to bighorn sheep are unlikely under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1 and 4.

Alternative 3 proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 77% (37,516 acres). Conversely, this increases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 23% (10,898 acres). In this Alternative, the area closed to winter motorized travel in this bighorn sheep winter range is increased by approximately 1,500 more acres. The areas closed in this Alternative are in areas bighorn sheep are generally not found. Effects from this Alternative would be identical to effects from Alternatives 1 and 2. Although unlikely, effects could be possible, however MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Pioneer Landscape (Pers. com. MFWP 2016). Although effects to bighorn sheep are unlikely under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2 and 4.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on bighorn sheep winter range on NFS lands at 81% (39,017 acres). This conversely retains acres of bighorn sheep winter range on NFS lands in a non-motorized classification at 19% (9,398 acres). The

effects of this Alternative are identical to Alternative 1. Although unlikely, effects could be possible, however MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Pioneer Landscape (Pers. com. MFWP 2016). Although effects to bighorn sheep are unlikely under Alternative 1, this alternative would not further reduce areas open to OSV travel on the winter range.

Alternative 5 proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 77% (37,516 acres). Conversely, this increases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 23% (10,898 acres). The areas closed in this Alternative are in areas bighorn sheep are generally not found. Effects from this Alternative would be identical to effects from Alternatives 1, 2, 3 and 4. Although unlikely, effects could be possible, however MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Pioneer Landscape (Pers. com. MFWP 2016). Although effects to bighorn sheep are unlikely under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2 and 4.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 76% (37,010 acres). Conversely, this increases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 24% (11,405 acres). This alternative closed OSV travel in this bighorn sheep winter range is increased by approximately 2,000 more acres. The areas closed in this Alternative are in areas bighorn sheep are generally not found. Effects from this Alternative would be identical to effects from Alternatives 1, 2, 3, 4 and 5. Although unlikely, effects could be possible, however MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Pioneer Landscape (Pers. com. MFWP 2016). Although effects to bighorn sheep are unlikely under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2, 4 and 5.

Mountain Goat

Alternative 1 proposes to keep approximately 27,774 acres or 64% of mountain goat winter range on NFS lands open to winter motorized travel in the Pioneer Landscape. This leaves approximately 15,906 acres or 36% of mountain goat winter range in a non-motorized classification in this Landscape. This Landscape has two separate winter range areas, east and west. Most of the western winter range area is closed to winter motorized use currently. This winter range area is unique in that it does not have steep rocky terrain. These goats winter in the foothills/valley. Generally if there is sufficient snow depth for snowmobiles or other OSVs, the mountain goats are lower down in the valley and off NFS lands (Pers. com. MFWP 2016). Much of the mountain goat winter range in this area is already closed to OSV use. However, there is still a possibility that some OSV use could disturb mountain goats and push them lower, if the activities were in the same area and especially if the recreationists were traveling close to the herds. The herd in the East Pioneers is subject to intermittent winter motorized use with no additional closures in this Alternative. However there are many years this area does not received sufficient snow for motorized use. Although use is intermittent, there is a slight chance that if they have not moved into the low snow areas, this herd could be disturbed and displaced by winter motorized use. The local MFWP biologist stated that although it is unlikely, it is

unknown if there is actual disturbance/effects from OSVs to either of these mountain goat herds. The mountain goat populations in the Pioneer Landscape however seem to be fairly stable at 100-150 animals (Pers. com. MFWP 2016).

Alternative 2 proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 63% (27,660 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 37% (16,020 acres). The effects from this Alternative are virtually identical to Alternative 1. In this Alternative 114 acres would be closed to winter motorized use and this is for the western herd. Nothing changes for the eastern herd. Potential disturbance effects for both populations exist. The local MFWP biologist stated that although it is unlikely, it is unknown if there is actual disturbance/effects from OSVs to either of these mountain goat herds. The mountain goat populations in the Pioneer Landscape however seem to be fairly stable at 100-150 animals (Pers. com. MFWP 2016). This alternative would further reduce potential effects on mountain goat winter range from OSV travel than Alternatives 1, 4, 5 and 6 Modified.

Alternative 3 proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 38% (16,543 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 62% (27,137 acres). Almost all of the winter range for the western herd would be closed to OSV use, reducing the potential effects. Effects to the eastern herd would not change from Alternative 1. The local MFWP biologist stated that although it is unlikely, it is unknown if there is actual disturbance/effects from OSVs to either of these mountain goat herds. The mountain goat populations in the Pioneer Landscape however seem to be fairly stable at 100-150 animals (Pers. com. MFWP 2016). This alternative would further reduce potential effects on mountain goat winter range from OSV travel than Alternatives 1, 2 4, 5 and 6 Modified.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on mountain goat winter range on NFS lands at 64% (27,774 acres). This conversely retains acres of mountain goat winter range on NFS lands in a non-motorized classification at 36% (15,906 acres). The effects from this Alternative are identical to Alternative 1. The local MFWP biologist stated that although it is unlikely, it is unknown if there is actual disturbance/effects from OSVs to either of these mountain goat herds. The mountain goat populations in the Pioneer Landscape however seem to be fairly stable at 100-150 animals (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use.

Alternative 5 proposes to retain the existing areas open to winter motorized travel on mountain goat winter range on NFS lands at 64% (27,774 acres). This conversely retains acres of mountain goat winter range on NFS lands in a non-motorized classification at 36% (15,906 acres). The effects from this Alternative are identical to Alternative 1. The local MFWP biologist stated that although it is unlikely, it is unknown if there is actual disturbance/effects from OSVs to either of these mountain goat herds. The mountain goat populations in the Pioneer Landscape however seem to be fairly stable at 100-150 animals (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use.

Although the percentage of winter motorized travel didn't change for the Pioneer Alternative 6 Modified proposes to increase slightly areas open to winter motorized travel on mountain goat

winter range to 27,889 acres but it is still 64% of the winter range on NFS lands. Conversely, this decreases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 15,791 acres but still 36%. The effects from this Alternative are identical to Alternatives 1, 4 and 5. The local MFWP biologist stated that although it is unlikely, it is unknown if there is actual disturbance/effects from OSVs to either of these mountain goat herds. The mountain goat populations in the Pioneer Landscape however seem to be fairly stable at 100-150 animals (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use.

Tobacco Root Landscape

The Tobacco Root Landscape comprised of NFS lands, private, state and other federal lands, has approximately 476,018 acres of general big game winter range as identified by MFWP. Of those figures, only 21 percent (101,293 acres) of general big game winter range is on NFS lands. Please refer to Table 14 for existing general big game winter range acres and percentages for all ownerships and by BDNF Landscape. The discussions that follow, focus on the NFS lands only, but it is important to remember that NFS lands make up a small portion of general big game winter range.

There are two hunt districts within this Landscape, 320 and 333. The combined population objective is 1,000 animals. As of 2015, there were an estimated 1,297 (exceeding objective) in the two hunt districts combined. Mule deer and moose have winter range spread across this Landscape while there is a small portion of antelope winter range on the very eastern edge. Antelope is not a significant species on the forest and will not be evaluated further. The mule deer long term average (LTA) in HD 320 is 1,076 and the 2015 estimated population was 1,094, above the LTA, while the LTA in HD 333 is 1,411 and the 2015 estimated population was 1,324, below the LTA (Pers. com. MFWP 2016). Although there are moose and winter range in this Landscape, this population has not been surveyed. There is a population of mountain goats in the Tobacco Root Landscape, however the winter range has not been officially mapped by MFWP. There is no white-tailed deer or bighorn sheep winter range in the Tobacco Root Landscape.

See Figure A- 6 through Figure A- 11 for general big game winter range maps by Landscape and by alternative.

General Big game

Alternative 1 proposes to keep approximately 98,885 acres or 98% of general big game range on NFS lands open to winter motorized travel in the Tobacco Root Landscape. This leaves approximately 2,408 acres or 2% of general big game winter range on NFS lands in a non-motorized classification in this Landscape. There is winter range around the entire fringe of the Tobacco Root Landscape. According to the recreation report, only 2% of this Landscape receives regular use, 20% receives intermittent use and 73% of the acreage is seldom, to never used by winter motorized travelers. The local MFWP biologist felt that this was an accurate representation of the OSV use in the Tobacco Roots. There is very little access for OSVs in most of the Landscape (Pers. com. MFWP 2016). Elk and moose are the two big game species that

could be disturbed/displaced by the motorized use in the winter range but only on approximately 22% which leaves 88% of the winter range on NFS lands undisturbed. Although there may be effects to individuals, OSV use has not been identified as an issue for the elk or moose populations in this area (Pers. com. MFWP 2016).

Alternative 2 proposes to retain the existing areas open to winter motorized travel on general big game winter range on NFS lands at 98% (98,885 acres). This conversely retains acres of general big game winter range on NFS lands in a non-motorized classification at 2% (2,408 acres). The effects of this Alternative are exactly the same as in Alternative 1. Although there may be effects to individuals, OSV use has not been identified as an issue for the elk or moose populations in this area (Pers. com. MFWP 2016). This alternative would not reduce potential effects on general big game winter range from OSV travel.

Alternative 3 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 40% (40,655 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 60% (60,638 acres). This Alternative would close the most acres to OSV travel in big game winter range in this Landscape. Approximately 58,200 additional acres would be closed in this Alternative. In this Alternative, the 2% of this Landscape that receives regular use and some that is intermittent use would be closed. As there is still intermittent use in the south part of the Landscape, elk, and moose could still possibly be disturbed/displaced by the motorized use. Although there may be effects to individuals, OSV use has not been identified as an issue for the elk or moose populations in this area (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4, 5 and 6 Modified.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on general big game winter range on NFS lands at 98% (98,885 acres). This conversely retains acres of general big game winter range on NFS lands in a non-motorized classification at 2% (2,408 acres). The effects of this Alternative are exactly the same as in Alternative 1 and 2. Although there may be effects to individuals, OSV has not been identified as an issue for the elk or moose populations in this area (Pers. com. MFWP 2016). This alternative would not reduce potential effects on general big game winter range from OSV travel.

Alternative 5 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 49% (50,060 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 51% (51,233 acres). This would be the second most acres to OSV travel in big game winter range in this Landscape. Although approximately 48,800 additional acres would be closed in this Alternative these sections are in the area that is seldom to never used by winter motorized travel. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. Effects from this alternative would be similar to Alternative 3. Elk and moose could be disturbed/displaced by the motorized use in this Landscape but only on approximately 22% which leaves 88% of the winter range on NFS lands undisturbed. Although there may be effects to individuals, OSV use has not been identified as an issue for the elk or moose populations in this area (Pers. com. MFWP 2016). This alternative would further reduce

potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 4 and 6 Modified.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 55% (55,442 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 45% (45,851 acres). Although approximately 43,400 additional acres would be closed in this Alternative these sections are in the area that is seldom to never used by winter motorized travel. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. Effects from this alternative would be similar to Alternatives 3 and 5. Although there may be effects to individuals, OSV use has not been identified as an issue for the elk or moose populations in this area (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2 and 4 Modified.

Bighorn Sheep

There is no bighorn sheep range in the Tobacco Root Landscape; therefore they will not be further discussed.

Mountain Goat

Although there is general range identified for mountain goats within the Tobacco Root Landscape, the winter range for this population has not been identified by MFWP. The local MFWP biologist stated that there has been a measurable decline in this mountain goat population but the cause is currently unknown. Monitoring of this population is ongoing. He also stated that these mountain goats winter on the west side of the landscape in lower elevation, rocky, mountain mahogany areas that are not conducive to OSV travel. There are no anticipated effects to mountain goats from any alternative (Pers. com. MFWP 2016).

Upper Clark Fork Landscape

The Upper Clark Fork Landscape comprised of NFS lands, private, state and other federal lands, has approximately 225,343 acres of general big game winter range as identified by MFWP. Of those figures, only 30 percent (66,659 acres) of general big game winter range is on NFS lands. Please refer to Table 14 for existing general big game winter range acres and percentages for all ownerships and by BDNF Landscape. The discussions that follow, focus on the NFS lands only, but it is important to remember that NFS lands make up a small portion of general big game winter range.

There are four hunt districts within this Landscape, 215, 340, 341, and 350. Population objectives for 340 and 350 are combined with hunt district 370. The combined population objective is 3,525 animals. As of 2015, there were an estimated 5,817 (exceeding objective) in the four hunt districts combined. Individually, hunt districts 215, 340, and 350 are over objective. Hunt district 341 is at objective. Mule deer and moose have winter range spread across this Landscape. The mule deer long term average (LTA) in HD 340 is 1,632 and the 2015 estimated population was 1,604, just slightly below the LTA, while the LTA in HD 341 is 364 and

the 2015 estimated population was 493, above the LTA (Pers. com. MFWP 2016). Although there are moose and winter range in this Landscape, this population has not been surveyed. There is no antelope, white-tailed deer, bighorn sheep, or mountain goat winter range in the Upper Clark Fork Landscape.

See Figure A- 6 through Figure A- 11 for general big game winter range maps by Landscape and by alternative.

General Big Game

Alternative 1 proposes to keep approximately 59,816 acres or 90% of general big game winter range on NFS lands open to winter motorized travel in the Upper Clark Fork Landscape. Although this seems high, remember the NFS portion of the winter range is only 30% of the entire winter range. This leaves approximately 6,843 acres or 10% of general big game winter range on NFS lands in a non-motorized classification in this Landscape. According to the use map, only 2% this Landscape is regularly used for winter motorized travel with 1% used intermittently. 87% is used by OSVs seldom to none and 11% is currently closed. The regular use is on a route from American Creek to Olsen Gulch. This area is timbered in so there are no options for cross country use. The two small intermittent use areas are adjacent to the southeast edge of the Mount Haggin State Wildlife Management Area (WMA) and in the Basin Creek area. Most of the elk winter on the Mount Haggin WMA where there is neither OSV nor foot travel allowed during the winter. There is one intermittent route through elk winter range near Basin Creek. If elk are in the area at the same time as the OSVs they could become disturbed/displaced. There is a slight chance that moose could be disturbed/displaced in the Olsen Gulch area. As this is a regularly utilized route, moose may either become habituated by the regular use or they would be able to move easily to other winter range areas without OSV use. However, the local MFWP biologist is not seeing any issues with moose in this Landscape (Pers. com. MFWP 2016). Although there is mule deer winter range identified on the official MFWP maps, the local biologists stated that when the snow is deep enough for OSV travel, that the deer have moved out of the area (Pers. com. MFWP 2016). There is no antelope or white-tailed deer winter range in the areas of regular or intermittent use so no effects are anticipated to these species in this Landscape. Although there may be effects to individuals OSV use has not been identified as an issue for the mule deer, elk or moose populations in the Upper Clark Fork Landscape (Pers. com. MFWP 2016).

Alternative 2 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 88% (58,504 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 12% (8,155 acres). Approximately 1,312 additional acres of the winter range would be closed to winter motorized use under this Alternative. This closure area would benefit elk that may be on the NFS lands within the winter range in this Landscape as the intermittent route in the Basin Creek area would be closed to winter motorized travel. There would be no anticipated effects to elk in this area. Effects for moose and mule deer would be identical to Alternative 1. Although there may be effects to individuals, OSV use has not been identified as an issue for the elk, mule deer or moose populations in the Upper Clark Fork Landscape. This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1 and 4.

Alternative 3 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 74% (49,064 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 26% (17,595 acres). Approximately 10,700 additional acres of the winter range would be closed to winter motorized use under this Alternative. The effects of this Alternative are almost identical to Alternative 2. The only difference would be the closing of areas that have seldom to no use, however these closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. Although there may be effects to individuals OSV use has not been identified as an issue for the elk, mule deer or moose populations in the Upper Clark Fork Landscape (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2 and 4.

Although the percentage of winter motorized travel didn't change for the Upper Clark Fork Alternative 4 proposes to increase slightly areas open to winter motorized travel on general big game winter range to 59,867 acres but it is still 90% of the winter range on NFS lands. Conversely, this decreases the acres of general big game winter range on NFS lands in a non-motorized classification to 6,792 acres but still 10%. Effects of this Alternative are identical to Alternative 1. There may be effects to individuals however OSV use has not been identified as an issue for the elk, mule deer or moose populations in the Upper Clark Fork Landscape (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on bighorn sheep winter range from OSV use, it would potentially increase them.

Alternative 5 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 74% (43,499 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 26% (23,160 acres). Approximately 16,300 additional acres of the winter range would be closed to winter motorized use under this Alternative. The effects of this Alternative would be identical to Alternative 3. No effects to elk are anticipated. There may be effects to individuals but OSV use has not been identified as an issue for the elk, mule deer or moose populations in the Upper Clark Fork Landscape (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2 and 4.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 66% (44,262 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 34% (22,397 acres). Approximately 15,500 additional acres of the winter range would be closed to winter motorized use under this Alternative. This alternative closes the most big game winter range to OSV travel. The effects from this Alternative are similar to Alternatives 3 and 5, except that the intermittent trail through elk winter range would be left open. Although there may be effects to individuals, OSV use has not been identified as an issue for the elk, mule deer or moose populations in the Upper Clark Fork Landscape (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 3, 4 and 5.

Bighorn Sheep

There is no bighorn sheep winter range in the Upper Clark Fork Landscape; therefore they will not be further discussed.

Mountain Goat

There is no mountain goat winter range in the Upper Clark Fork Landscape; therefore they will not be further discussed.

Upper Rock Creek Landscape

The Upper Rock Creek Landscape comprised of NFS lands, private, state and other federal lands, has approximately 219,171 acres of general big game winter range, 41,441 acres of bighorn sheep winter range and 69,297 acres of mountain goat winter range as identified by MFWP. Of those figures, 51 percent (111,807 acres) of general big game, 20 percent (8,168 acres) of bighorn sheep, and 92 percent (68,296 acres) of mountain goat winter ranges are on NFS lands. Please refer to Table 14 and Table 16 for existing general big game, bighorn sheep and mountain goat winter range acres and percentages for all ownerships and by BDNF Landscape. The discussions that follow, focus on the NFS lands only, but it is important to remember that NFS lands make up a small portion of bighorn sheep winter range. It is also important to remember that just under half of the general big game winter range and 8 percent of the mountain goat winter range is also comprised of private, state and other federal lands.

The Upper Rock Creek Landscape has winter range for general big game (111,807 acres), bighorn sheep (8,168 acres), and mountain goat (68,296 acres). There are four elk hunt districts, 210, 211, 214, and 216 in this Landscape. The objective for this combined area is 2,225 elk and as of 2015, there were an observed 2,919 animals (exceeding objective). Individually, hunt units 210 and 211 are over objectives while hunt district 214 is at objective while hunt district 216 is below objectives. Mule deer, white-tailed deer, and moose also have winter range in this Landscape. Region 2 does not report mule deer population numbers by hunt unit (Pers. com. MFWP 2016). There are moose and winter range in this Landscape, however this population has not been surveyed. Although the official maps show white-tail winter range on NFS lands, the local MFWP biologist stated that they winter on private land (Pers. com. MFWP 2016). There is no antelope winter range in the Upper Rock Creek Landscape. Bighorn sheep hunt unit 216 is in the Upper Rock Creek Landscape with an estimated 210 animals with a plan objective of 240-360. Although not currently to the desired objective, this population has increased from 1981 when there were an estimated 128 bighorn sheep. In the past, bighorn sheep have been removed out of this population to supplement or establish populations elsewhere (MFWP 2010). There are two mountain goat herds in the Upper Rock Creek Landscape. As there have been no surveys recently, there are no estimates for the mountain goat population in this Landscape (Pers. com. MFWP 2016).

See Figure A- 6 through Figure A- 11 for general big game winter range maps by Landscape and by alternative. See Figure B- 2 through Figure B- 7 for bighorn sheep winter range maps by Landscape and by alternative. See Figure C- 2 through Figure C- 7 for mountain goat winter range maps by Landscape and by alternative.

General Big Game

Alternative 1 proposes to keep approximately 84,919 acres or 76% of general big game winter range on NFS lands open to winter motorized travel in the Upper Rock Creek Landscape. This leaves approximately 26,888 acres or 24% of general big game winter range on NFS lands in a non-motorized classification in this Landscape. According to the use map, 70% this Landscape is regularly used for winter motorized travel with 9% used intermittently. 60% is used by OSVs seldom to none and 24% is currently closed. Use in this Landscape within the winter range is primarily by routes with a few small play areas. There are areas of cross county travel in this Landscape but they are outside the big game winter range areas. There is winter range for mule deer, moose and elk within regular and intermittent use areas. This winter motorized travel can disturb/displace ungulates on the winter range. All three of these species can become habituated to regular travel or they can move away from regular routes to other areas within the winter range. Although there may be effects to individuals, OSV use has also not been identified as an issue for the elk, mule deer or moose populations in the Upper Rock Creek Landscape (Pers. com. MFWP 2016).

Although the percentage of winter motorized travel didn't change for the Upper Rock Creek, Alternative 2 proposes to increase slightly areas open to winter motorized travel on general big game winter range to 85,096 acres but it is still 76% of the winter range on NFS lands. Conversely, this decreases the acres of general big game winter range on NFS lands in a non-motorized classification to 26,712 acres but still 24%. Effects from this Alternative are identical to Alternative 1. Although there may be effects to individuals, OSV use has not been identified as an issue for the elk, mule deer or moose populations in the Upper Rock Creek Landscape (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use, it would potentially increase them.

In the Upper Rock Creek Landscape Alternative 3 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 68% (75,564 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 32% (36,243 acres). Approximately 9,300 additional acres of the winter range would be closed to winter motorized use under this Alternative. In this Alternative some of the regularly and intermittently used routes would be closed. Although that is an improvement in the winter range, there could still be disturbance/displacement effects to elk, mule deer, and moose. Although there may be effects to individuals, OSV use has not been identified as an issue for the elk, mule deer or moose populations in the Upper Rock Creek Landscape (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2 and 4.

Although the percentage of winter motorized travel didn't change for the Upper Rock Creek Landscape, Alternative 4 proposes to increase slightly areas open to winter motorized travel on general big game winter range to 85,096 acres but it is still 76% of the winter range on NFS lands. Conversely, this decreases the acres of general big game winter range on NFS lands in a non-motorized classification to 26,712 acres but still 24%. Effects from this Alternative are identical to Alternatives 1 and 2. Although there may be effects to individuals, OSV use has not been identified as an issue for the elk, mule deer or moose population in the Upper Rock Creek

Landscape (Pers. com. MFWP 2016). This alternative would not reduce the potential effects on general big game winter range from OSV use, it would potentially increase them.

In the Upper Rock Creek Landscape Alternative 5 proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 67% (74,739 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 33% (37,068 acres). Approximately 10,200 additional acres of the winter range would be closed to winter motorized use under this Alternative. Effects of this Alternative would be similar to Alternative 3. In this Alternative some of the regularly and intermittently used routes would be closed. Although that is an improvement in the winter range, there could still be disturbance/displacement effects to elk, mule deer, and moose. Although there may be effects to individuals, OSV use has not been identified as an issue for the elk, mule deer or moose populations in the Upper Rock Creek Landscape (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 3 and 4.

In the Upper Rock Creek Landscape Alternative 6 Modified proposes to decrease areas open to winter motorized travel on general big game winter range on NFS lands to 59% (66,335 acres). Conversely, this increases the acres of general big game winter range on NFS lands in a non-motorized classification to 41% (45,472 acres). Approximately 18,600 additional acres of the winter range would be closed to winter motorized use under this Alternative. This alternative would close the most big game winter range to OSV travel. Effects of this Alternative would be similar to Alternative 3. In this Alternative some of the regularly and intermittently used routes would be closed. Although that is an improvement in the winter range, there could still be disturbance/displacement effects to elk, mule deer, and moose. Although there may be effects to individuals, OSV use has not been identified as an issue for the elk, mule deer or moose populations in the Upper Rock Creek Landscape (Pers. com. MFWP 2016). This alternative would further reduce potential effects on general big game winter range from OSV travel than Alternatives 1, 2, 3, 4 and 5.

Bighorn Sheep

Alternative 1 proposes to keep approximately 5,667 acres or 69% of bighorn sheep winter range on NFS lands open to winter motorized travel in the Upper Rock Creek Landscape. This leaves approximately 2,501 acres or 31% of bighorn sheep winter range on NFS lands in a non-motorized classification in this Landscape. According to the Bighorn Sheep observation Strategy this herd winters mostly on, “privately owned cliffs, draws and bowls above Rock Creek”. (MFWP 2010). According to the local MFWP biologist, the bighorn sheep do not winter on NFS lands. There are no anticipated effects to this bighorn sheep population from OSV travel (Pers. com. MFWP 2016). MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Upper Rock Creek Landscape (Pers. com. MFWP, 2016).

In the Upper Rock Creek Landscape Alternative 2 proposes to retain the existing areas open to winter motorized travel on bighorn sheep winter range on NFS lands at 69% (5,667 acres). This conversely retains acres of bighorn sheep winter range on NFS lands in a non-motorized

classification at 31% (2,501 acres). As this herd of bighorn sheep winter on private land, there are no anticipated effects to this bighorn sheep population from OSV travel (Pers. com. MFWP 2016). MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Upper Rock Creek Landscape (Pers. com. MFWP, 2016).

In the Upper Rock Creek Landscape Alternative 3 proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 23% (1,919 acres). Conversely, this increases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 77% (6,249 acres). This alternative would close approximately 3,700 additional acres on the winter range. As this herd of bighorn sheep winter on private land, there are no anticipated effects to this bighorn sheep population from OSV travel (Pers. com. MFWP 2016). MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Upper Rock Creek Landscape (Pers. com. MFWP, 2016). Although no effects to bighorn sheep are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2 and 4.

In the Upper Rock Creek Landscape, Alternative 4 proposes to retain the existing areas open to winter motorized travel on bighorn sheep winter range on NFS lands at 69% (5,667 acres). This conversely retains acres of bighorn sheep winter range on NFS lands in a non-motorized classification at 31% (2,501 acres). As this herd of bighorn sheep winter on private land, there are no anticipated effects to this bighorn sheep population from OSV travel (Pers. com. MFWP 2016). MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Upper Rock Creek Landscape (Pers. com. MFWP, 2016).

Alternative 5 proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 6% (517 acres). Conversely, this increases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 94% (7,651 acres). This alternative would close approximately 5,200 additional acres on the winter range. As this herd of bighorn sheep winter on private land, there are no anticipated effects to this bighorn sheep population from OSV travel (Pers. com. MFWP 2016). MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep in the Upper Rock Creek Landscape (Pers. com. MFWP, 2016). Although no effects to bighorn sheep are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2, 3, 4 and 6 Modified.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on bighorn sheep winter range on NFS lands to 19% (1,534 acres). Conversely, this increases the acres of bighorn sheep winter range on NFS lands in a non-motorized classification to 81% (6,634 acres). This alternative would close approximately 4,100 additional acres on the winter range. As this herd of bighorn sheep winter on private land, there are no anticipated effects to this bighorn sheep population from OSV travel (Pers. com. MFWP 2016). MFWP has not identified snowmobile use on the Forest as a management challenge for bighorn sheep herds in the Upper Rock Creek Landscape (Pers. com. MFWP, 2016). Although no effects to bighorn sheep are anticipated under Alternative 1, this alternative would further reduce areas open to OSV travel on the winter range than Alternatives 1, 2, 3 and 4.

Mountain Goat

Alternative 1 proposes to keep approximately 27,399 acres or 40% of mountain goat winter range on NFS lands open to winter motorized travel in the Upper Rock Creek Landscape. This leaves approximately 40,897 acres or 60% of mountain goat winter range on NFS lands in a non-motorized classification in this Landscape. There are two different winter range areas in this Landscape as well, the Upper Rock and the Anaconda-Pintler group. In this Alternative there are no additional closures for the Upper Rock winter range area from winter motorized travel. There is a route (snow-covered road in this case) that is used intermittently to access Stony Lake that is adjacent to this winter range area. Although unlikely, the noise could affect this herd if they are in the area at the same time the trail is being used (Pers. com. MFWP 2016). The southern winter range area is part of the Anaconda-Pintler Wilderness which is a very large winter range. Although official MFWP winter range maps show mountain goats outside of the wilderness, according to the local MFWP biologist, they spend all of their time in the Anaconda-Pintler Wilderness, where OSV travel is already closed (Pers. com. MFWP 2016). That said there is a trail, used intermittently, that runs through a piece of this winter range. There is a chance that if mountain goats are utilizing this area at the same time as winter motorized trail users, they could be disturbed or displaced. Although extremely unlikely, disturbance is possible to mountain goats. The local MFWP biologist, did not identify instances where winter motorized travel is affecting any of the mountain goat populations in the Upper Rock Creek Landscape (pers. com. MFWP 2016).

Alternative 2 proposes to retain the existing areas open to winter motorized travel on mountain goat winter range on NFS lands at 40% (27,399 acres). This conversely retains acres of mountain goat winter range on NFS lands in a non-motorized classification at 60% (40,897 acres). The effects from this Alternative are the same as Alternative 1. Although extremely unlikely, disturbance is possible to mountain goats. The local MFWP biologist did not identify instances where winter motorized travel is affecting any of the mountain goat populations in the Upper Rock Creek Landscape (pers. com. MFWP 2016). This alternative would not reduce the potential effects on mountain goat winter range from OSV use.

In the Upper Rock Creek Landscape Alternative 3 proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 31% (21,227 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 69% (47,020 acres). There are approximately 6,000 acres that would be closed to winter motorized travel on the southern winter range. That said, the intermittent use trail would still be open to use and could have disturbance/displacement effects to this herd is they are on this part of the winter range at the same time as the winter motorized travel. The effects to the Upper Rock population would remain the same as Alternative 1. Although extremely unlikely disturbance is possible. The local MFWP biologist did not identify instances where winter motorized travel is affecting any of the mountain goat populations in the Upper Rock Creek Landscape (pers. com. MFWP 2016). This alternative would further reduce areas open to OSV travel on the mountain goat winter range than Alternatives 1, 2, 4 and 5.

Alternative 4 proposes to retain the existing areas open to winter motorized travel on mountain

goat winter range on NFS lands at 40% (27,399 acres). This conversely retains acres of mountain goat winter range on NFS lands in a non-motorized classification at 60% (40,897 acres). The effects from this Alternative are the same as Alternative 1. Mountain goats in each of these winter range areas could be affected by winter motorized use on an intermittent basis, if they are on the winter range at the same time as the winter motorized users. Although extremely unlikely, disturbance is possible. The local MFWP biologist did not identify instances where winter motorized travel is affecting any of the mountain goat populations in the Upper Rock Creek Landscape (pers. com. MFWP 2016). This alternative would not reduce the potential effects on mountain goat winter range from OSV use.

In the Upper Rock Creek Landscape Alternative 5 proposes to retain the existing areas open to winter motorized travel on mountain goat winter range on NFS lands at 40% (27,399 acres). This conversely retains acres of mountain goat winter range on NFS lands in a non-motorized classification at 60% (40,897 acres). The effects from this Alternative are the same as Alternative 1. Mountain goats in each of these winter range areas could be affected by winter motorized use on an intermittent basis, if they are on the winter range at the same time as the winter motorized users. Although extremely unlikely, disturbance is possible. The local MFWP biologist did not identify instances where winter motorized travel is affecting any of the mountain goat populations in the Upper Rock Creek Landscape (pers. com. MFWP 2016). This alternative would not reduce the potential effects on mountain goat winter range from OSV use.

Alternative 6 Modified proposes to decrease areas open to winter motorized travel on mountain goat winter range on NFS lands to 22% (14,951 acres). Conversely, this increases the acres of mountain goat winter range on NFS lands in a non-motorized classification to 78% (53,345 acres). In this alternative, over 12,000 acres that would be closed to winter motorized travel on the Anaconda-Pintler winter range. That said, the intermittent use trail would still be open to use and could have disturbance/displacement effects to this herd is they are on this part of the winter range at the same time as the winter motorized travel. In this Alternative the entire Upper Rock winter range, including the intermittent use trail, would be close to winter motorized travel. There would be no further anticipated effects to mountain goats in this population from this Alternative. Although extremely unlikely, disturbance is possible. The local MFWP biologist did not identify instances where winter motorized travel is affecting any of the mountain goat populations in the Upper Rock Creek Landscape (pers. com. MFWP 2016). This alternative would further reduce areas open to OSV travel on the mountain goat winter range than Alternatives 1, 2, 3, 4 and 5.

Summary Statement

General Big Game: Across the Forest, the elk population is doing well. The population objectives for all the Hunt Districts combined across the Forest is 30,155 and the 2015 estimates of the elk population is 39,001. For reference, the 2007 estimate of the elk population was approximately 30,549 - 30,858. As you can see, the elk population has grown even with current management, including OSV use. There is only one Landscape (Boulder) where OSV travel has been identified as an issue for individual elk. Alternative 6 Modified added closures to reduce effects

specifically to elk on the winter range in this Landscape. In general however, OSV travel is not affecting elk populations (Pers. com. MFWP 2016). There are two Landscapes (Boulder and Gravelly) where OSV travel has been identified as an issue for individual moose. Alternative 6 Modified added closures to reduce effects specifically to moose on the winter range in the Boulder Landscape. In the Gravelly Landscape, the local MFWP biologist recommended an education plan that involves signing in moose habitat. The Madison District Ranger agreed to proceed with this signing plan (beginning with the 2016/2017 winter season) to reduce effects to moose wintering in willow bottoms along the West Fork of the Madison. There are a few landscapes where mule deer could potentially be disturbed by OSV travel however, it has not been identified as an issue for any mule deer populations across the Forest (Pers. com. MFWP 2016). As neither white-tailed deer nor antelope are significant species on the Forest, none of their winter ranges would be affected by OSV travel.

Bighorn Sheep: Overall, most of the alternatives close important bighorn sheep winter range from OSV travel. There are only two Landscapes where there are potential effects to bighorn sheep on the winter range; Gravelly and Pioneer. The Gravelly Landscape has the only bighorn sheep winter range with winter travel consistently through it. Recreationists drive through it on the main road to reach the unloading point. There is no off road travel in the bighorn sheep winter range and negative effects from off-road travel is not expected (pers. com. MFWP 2016). The Pioneer Landscape is the only other area where if bighorn sheep are in the area at the same time as the intermittent OSV use, effects could be increased stress, increased energy expenditures on these animals or displacement from preferred habitats on a large part of the winter range. Although these effects could be possible, MFWP has not identified snowmobile use in this area as a management challenge for this or any other herd on the BDNF (MFWP 2010).

Mountain Goats: Overall, Alternative 3, followed by Alternative 6 Modified, would reduce potential effects from OSV travel to mountain goats on the winter range. Even in Alternative 3 some mountain goat winter range remains open to winter motorized travel which could cause disturbance and displacement of mountain goats. There are only three Landscapes, Clark Fork Flint, Pioneer and Upper Rock Creek where potential effects may be possible (Pers. com. MFWP 2016). Although disturbance to individuals is possible, MFWP biologists did not recommended measures needed to further protect mountain goats and stated there is no evidence that OSV travel is affecting any of these populations on the BDNF (pers. com. MFWP 2016).

Effect of OSV Use on Resources Cited in Minimization Criteria

This section of the SEIS considers the effects of OSV in areas open to winter motorized use on the resources enumerated in 36 CFR 212.55(b), with the objective of minimizing those effects. The environmental analysis identifies and analyzes potential (1) damage to soil, watershed, vegetation, and other forest resources; (2) harassment of wildlife and significant disruption of wildlife habitats; (3) conflicts between motor vehicle use and existing or proposed recreational uses of NFS lands or neighboring federal lands; and (4) conflicts among different classes of

motor vehicle uses of NFS lands or neighboring federal lands.

For each criterion, effects common to all alternatives is provided, followed by more specific analysis by landscape. This section compares differences between alternatives in minimizing those impacts.

For the effects of OSV routes delineated in the Forest Plan, refer to the 2012 SEIS and Determination.

Soil, Watershed, Vegetation and Other Forest Resources

Effects Common to All Alternatives in All Landscapes

Resource specialists on the BDNF were asked to locate where OSV use – especially during low snow conditions – detrimentally affects soil, watershed and vegetation resources. While specialists recognized that such impacts may rarely occur, the impacts are of such a limited extent they were unable to identify any locations where the effects are discernible on-the-ground. Forest resource specialists have been unable to identify any damage to soil, watershed, vegetation and other forest resources in any area after numerous years of observations.

There are differences between alternatives, in terms of the potential risk of OSVs damaging soil; watershed, vegetation and other forest resources, because the amount of areas open to this use varies between the alternatives (Figures 3 through 7 and Tables 1 through 11). However, the on-the-ground, actual effects have been negligible, regardless of the extent of open areas. We are unable to identify any discernible effects to soil, watershed, vegetation and other forest resources on any of the landscapes.

The 2009 FEIS found that impacts from OSV use to soil and vegetation are benign since these resources are buffered by snow during winter OSV use and the tracks vanish with snow melt (2009 FEIS, pg. 289). This is validated by Forest resource specialists' observations (David Ruppert, pers. com. 2015). No specialists on the Forest have observed impacts to soil and vegetation from OSV use during low snow conditions where the impacts did not fully rehabilitate the following growing season (pers. com. 2015).

Numerous reviewers of the 2015 Draft SEIS identified concerns that potential impacts have not been noted because monitoring is not occurring. This assumption is inaccurate. Every time agency resource specialists are physically on-the-ground, they monitor resources through visual observations. To review the 2009 assumptions concerning effects to soil, water and vegetative resources from OSV use on the BDNF, ten agency resource specialists were asked to locate where OSV use – especially during low snow conditions- detrimentally affect soil, watershed and vegetation resources They were unable to identify any damage to the resources in any areas after numerous years after numerous years of observations. These specialists have a combined total exceeding 200 years of experience observing on-the-ground conditions on the BDNF. In addition, while several comment letters assume detrimental effects are occurring, more than 200 reviewers also did not identify any specific locations where detrimental impacts are located. If resources specialists or forest users begin observing impacts from OSV use during low snow conditions, site specific monitoring, including inventory and evaluation of those effects would be appropriate, at that time and at that location.

Reviewers also indicated impacts from OSV use could be subtle and cumulative. This concern would be accurate if this activity was new to the BDNF. However, OSV use has been a popular winter recreation activity on the BDNF since the mid-1960's. Potential impacts from repetitive low snow condition OSV use over a 50 year period is not apparent on any of the landscape

National Best Management Practices (USDA 2012) indicate a minimum snow depth to protect the underlying vegetative cover and soil or trail surface may be appropriate. However there is no indication of an existing or impending problem on the BDNF; users appear to be self-selecting the best snow.

As disclosed in the 2009 FEIS (pg. 90), overall emissions from OSV use on the BDNF are unlikely to exceed National Ambient Air Quality or Montana Air Quality Standards since these standards have not been exceeded in the West Yellowstone area where OSV use is much heavier.

Water quality has not been an issue with OSV use in the past (pers. comm., Brammer, 2015). Even where OSV use follows drainages, snow, terrain and use patterns appear to be providing adequate protection. Risk for water contamination is highest near concentrated use areas such as OSV staging areas or parking lots if they occur close to water (2009 FEIS, pg. 137). Considering there is no real aquatic biological or water quality risk related to emissions from OSV use in Yellowstone National Park (Arnold & Koel, 2006), there is minimal risk to those where OSV use occurs at vastly lower concentrations levels on the BDNF under any alternative.

Relationship of Snowfall Patterns to OSV Use Patterns

The nature of the snowpack depth patterns on the BDNF are largely driven by orographic snowfall events. Orographic snowfall is created by upward forcing of the atmosphere as it encounters mountains (orography); as clouds move across the surface of the earth in the atmospheric flow and encounter mountainous terrain they are forced up and into colder air in the upper atmosphere which causes water vapor to condense and form liquid and/or frozen precipitation particles that fall to the ground. As such orographic snowfall can result in significant amounts of snow at high elevations and little to no snow at valley locations, with mid-elevations receiving modest and variable amounts of snow depending on a variety of other factors. This orographic driven snowfall regime generally results in snow depths increasing exponentially with increases in elevation as can be seen in the most recent Montana Water Supply Outlook Report and many previous reports (comparing mid-elevation snotel data [6-8,000 ft.] to higher elevation snotel data above 8,000 ft.). This is especially true in and around the BDNF as compared to areas further west of the continental divide where snowfall is generally deeper at lower elevations:
http://www.nrcs.usda.gov/wps/portal/nrcs/main/mt/snow/waterproducts/basin/.

Comparing mid elevation band (6-8,000 ft. above sea level) snowpack depths around the BDNF to those above the 8,000 foot elevation band shows a stark increase in the snow depths above this 8,000 ft. elevation level. As such, the overwhelming majority of high-quality winter recreation opportunities, both motorized and non-motorized, occurs above 7,000-8,000 ft. in elevation. This is due to snow depths in the mid-elevation band being unsuitable to cover hazards (rocks, down trees, live vegetation) to the user and their equipment. These hazards are numerous in the terrain and landscapes across the BDNF relative to high elevation alpine

and/or more northerly latitude National Forests such as the Chugach National Forest where alpine tundra is the typical terrain under the snowpack. Alpine terrain typically lacks trees and other vegetation of sufficient height and or roughness to pose a hazard to the user in low snow conditions (with the notable exception of alder bushes), however snowpack is not the limiting factor in alpine terrain on the BDNF due to the fact that alpine environments occur only at high elevations, in contrast to places like the Chugach where alpine environments begin as little as a thousand or so feet above sea level.

Figure 11 below illustrates typical snow depths in the mid-elevations. As is shown in the figure, snow depths in this area of the Pioneer landscape are shallow at this elevation. Although the timing of the photo is earlier in the winter, (late December 2015) was an exceptionally snowy period and the snow depth in the picture is representative of winter conditions in January and February.

Figure 11. Thief Creek/Middle Mountain Area in the Pioneer Landscape (FS Road 606) on December 27, 2015 showing typical winter snow depths at mid-elevations. Photo location is 6,600 ft. above sea level. Elevation of Middle Mountain (highest point in center top of photo) is approximately 7,700 ft.

The above discussion supports the observations among Forest staff that OSV users are highly unlikely to stray from snow-covered summer roads and trails where hazards (vegetation and rocks) are already cleared as they pass through the mid-elevation zone where snowpack is

thinner and more variable. It is readily apparent in the figure above that little opportunity to travel cross-country over snow exists in this mid-elevation band without significant risk of damaging equipment and/or bodily injury. OSV users overwhelmingly seek to simply pass through this mid-elevation band on their way to higher quality riding conditions associated with deeper snowpack conditions above 8,000 ft. in elevation where risk of hitting thinly buried (or unburied) hazards is lower. In this way OSV users largely self-regulate their travel over and on vegetation and bare soils due to a sense of self (and equipment) preservation.

Literature Review Summary Regarding Soils

There is a slight chance that OSV activities may indirectly contribute to erosion of trails and steep slopes under any alternative. If steep slopes are intensively used, snow may be removed and the ground surface exposed to extreme weather conditions and increased erosion by continued OSV traffic. As the snow is compacted the soil temperature below can be reduced; soil microbial activity and the germination of seeds can be slowed (Baker and Bithmann, 2005). The same results could occur when OSVs use exposed southern exposures. Because compacted snow generally takes longer to melt, trails are often wet and soft when the surrounding areas are dry. Consequently, these trails[11] are susceptible to damage by other users during the spring (Masyk 1973). Forest resource specialists have not identified any damage to soil in any landscape from OSV use.

Literature Review Summary Regarding Watershed

After OSV use increased in YNP in the mid-1990s, research was undertaken to determine if volatile organic compounds (VOCs) could accumulate in snow along snowmobile routes and impact aquatic resources during/after snowmelt. Arnold and Koel (2006) analyzed snowmelt water samples collected from snowmobile routes in YNP for nine VOCs. Benzene, ethylbenzene, m- and p-xylene, o-xylene, and toluene were the only compounds that occurred at levels that could be detected during the study. The highest concentrations for VOCs measured during the study were still substantially lower than EPA recommendations.

Half maximal effective concentration (EC50) refers to the concentration of a toxicant which induces a response halfway between the baseline and maximum after a specified exposure time. The 96 hour EC50 for trout for toluene ranges from 3,600 to 6000 µg/L (Arnold and Koel 2006). They also found the highest average concentrations of toluene over a 96 hour period occurred at Old Faithful and were 0.4662 µg/L. This is 1/7700th of the concentration of the 3,600 µg/L EC50 threshold.

The numbers of OSVs entering YNP during the study period was 47,799 (*ibid*), or an average of 278 OSVs for 120 consecutive days. Comparatively, two of the heaviest OSV use staging areas on the BDNF are qualitatively estimated to have 5 to 10 OSVs use them Monday through Friday, increasing to 15 to 20 on weekend days (Nathan Gassmann, Recreation Forester, pers. comm. 212). This is about 1/20th of the pressure seen in YNP.

[11] It is important to note that on the BDNF, the most heavily used/compacted OSV routes largely follow existing roads and trails. In these cases, the effects described here would amount to a facility (road/trail) maintenance issue but not a natural resource/soil productivity concern.

Studies of snowpack chemistry on heavily traveled OSV routes indicated no detectable levels of VOC or total petroleum hydrocarbons in surface waters located immediately down gradient. Arnold and Koel (2006) measured VOC concentrations of the snowmelt water derived from the routes used by the OSVs. Their control was located 100 meters from a route where effects from OSV emissions are negligible. This suggests snow with the potential to contaminate surface water is also a miniscule portion of the snow within a drainage or watershed, since it is limited to the trails along which OSVs travel. Any contaminants entering streams from snowmobile routes would be diluted many orders of magnitude by the vast amounts of water derived from snowmelt away from the trails.

McDaniel and Zielinska (2015) details a study of Blackwood Canyon in the Tahoe Basin area which was chosen because of its popularity with snowmobilers. The study notes that a single outfitter-guide operator in the area provided snowmobile tours to over 9,750 visitors annually. The study distinguished between different levels of snowmobile use finding that heavy polycyclic aromatic hydrocarbons (PAHs) were significantly greater in snow samples from areas with greater than 50% coverage by snowmobile tracks. The study found that PHA loading in the snowpack was proportional to the level of snowmobile activity at and adjacent to the sampling site. Snowmobiling on the BDNF simply does not occur in the concentrations similar to the Tahoe Basin and water quality effects can't be compared.

The 2009 FEIS (pg. 90) documents that emissions will not exceed air quality standards under any alternative.

Literature Review Summary Regarding Vegetation

The Greater Yellowstone Winter Wildlife Working Group of the Greater Yellowstone Coordinating Committee summarized the effects of winter recreation (Olliff, Legg and Kaeding 1999), finding that there is little information available describing the ecological effects of snowmobiling and other winter recreational activities on vegetation. While it's possible that OSVs can run over trees and shrubs tearing the bark, ripping off branches, or topping trees, this has not been observed on the BDNF. The impact of snowmobile activities on the physical environment varies with winter severity, the depth of snow accumulation, the intensity of snowmobile traffic, and the susceptibility of the organism to injury (Wanek 1973). Activities occurring on roadbeds and trails are probably having little effect on vegetation as soils on these areas are already compacted due to frequent traffic from use as a trail or road.

A snowmobile exerts 0.5 pounds of pressure per square inch and is further reduced by an intervening blanket of snow. OSV activities can create trails as the vehicles compact the snow. Other winter recreation activities also have the potential to increase snow compaction depending on the intensity of the activities. Compacted snow was calculated to have two to three times more density than uncompacted snow. Thermal conductivity of compacted snow was 11.7 times greater than uncompacted snow (Neumann and Merriam 1972). Soil temperature can also be affected by OSV compaction of snow. Soils in the areas where snowmobiles traveled thawed later than where snowmobiles did not travel (Wanek and Schumacher 1975).

There is the potential that OSV activities can damage vegetation on and along routes. In the

Greater Yellowstone literature review and assessment (Olliff, Legg and Kaeding 1999), the most commonly observed effect from snowmobiles was the physical damage to shrubs, saplings, and other vegetation (Neumann and Merriam 1972, Wanek 1971, Wanek and Schumacher 1975). Neumann and Merriam (1972) observed that compacted snow conditions caused twigs and branches to bend sharply and break. Stems that were more pliable bent and sprang back although the snowmobile track often removed bark from the stems' upper surfaces. Neumann and Merriam (1972) found that rigid woody stems up to one inch in diameter were very susceptible to damage. Stems were snapped off in surface packed or crusted snow. Further, Neumann and Merriam (1972) concluded these effects have the potential to severely damage or eliminate small plots of specific vegetative types and recommend where preservation of such vegetation is desired, snowmobile trails should be prohibited. The Forest Plan provides management direction for the 3.38 million acre BDNF. While these small plots of damaged vegetation may exist, we are unable to identify areas where such vegetation is so sensitive or rare it needs preserved by prohibiting OSV use.

In some trembling aspen (*Populus tremuloides*) areas, populations increased after snowmobiles disturbance. Studies (Neumann and Merriam 1972; Wanek 1971, 1973) indicated that conifers differed in tolerance of snowmobile traffic, and that pine species (e.g., *Pinus contorta*) were less susceptible to damage than spruce species (e.g., *Picea glauca*). In general, depth of snow accumulation was the greatest factor contributing to conifer damage by snowmobiles. Deeper snow tended to protect some species and age classes; herbaceous and woody plants exhibited varying responses to snowmobile activities, with some species increased while others decreased in number (Olliff, Legg, and Kaeding 1999). However, on the BDNF this has not been observed.

Harassment of wildlife and significant disruption of wildlife habitat

Spatial Context

The spatial context will be the same as for the big game discussion. See page 39 for the full discussion.

Analysis

It is illegal in the state of Montana to harass wildlife from snowmobiles. Based on the MFWP statutes, "A person while operating a snowmobile may not: (1) use the snowmobile for the purpose of driving, rallying, or harassing game animals, game birds, or fur-bearing animals of the state or livestock, including ostriches, rheas, and emus...(2) discharge a firearm from or upon a snowmobile…"(MFWP 2013).

Winter motorized travel usually occurs on the BDNF January through April. Snowmobile activities during December and May are sparse due to lack of snow and warm temperatures. Use is concentrated on weekends, with very little activity seen Monday through Friday. As described earlier in the SEIS, although actual winter motorized travel varies each season with the snow depth and condition of the snow, the use dates are identified as December 1 to May 15.

Although the majority of the forest is open to motorized use in the winter, approximately half of the motorized settings are not accessible to snowmobiles due to natural features such as dense timber, large rocks, cliffs, steep terrain, or inadequate snow depths. It is acknowledged however that technologic advances in snowmobile design have led to snowmobiles penetrating farther into backcountry areas. For this analysis, these areas are considered in the open area calculations.

As mentioned in the big game section starting on page 39, MFWP management plans were reviewed to identify site specific concerns for wildlife. OSV use was not specifically listed as a threat nor were there any management recommendations proposed in any of the documents reviewed.

Methodology

Reviews of species data were conducted to determine which species are known to occur in the area or have suitable habitat present and could potentially occur. Sources reviewed include Montana Natural Heritage Program (MTNHP), Forest wildlife sighting database information, 2009 Forest Plan FEIS Appendix B (Biological Evaluation) and species distribution information from MFWP.

For each affected species, available population status and distribution information; occurrence records from inventory and monitoring efforts; hunting and trapping data; informal observation data; and the scientific literature for information on the biological and habitat (including home range size) requirements for species as well as species' response to disturbance was examined.

The USFWS has official grizzly bear distribution maps. There are also unconfirmed sightings which can be found in the Montana Natural Heritage Program database. Both sources of data were used in this analysis.

Geographic Information System (GIS) contributed to the analysis of wildlife habitat for this document. The BDNF GIS Specialist and Wildlife Biologist used ArcGIS (ESRI software) to create various data layers which were the basis for the habitat and vegetation figures displayed in this document.

A grizzly bear denning model was created for the forest based on Judd et al 1986 – Denning of Grizzly Bears in the Yellowstone National Park Area and Mace & Waller 1997 – Final Report: Grizzly Bear Ecology in the Swan Mountains, Montana.

A wolverine denning habitat model was developed for the forest based on Heinemeyer et al. 2001. This model incorporated slope, elevation, rock, ice and alpine cover types, and patch size preferred by wolverine. This model was used for the effects analysis. Based on public comment, the model as described in Inman 2013 was also utilized in this effects analysis.

An OSV use map was created by Forest recreation staff and used in the effects analysis for all species. The effects analysis considers regular use cross country areas as predictable as regular use routes.

The wildlife analysis for the 2012 Final Supplemental Environmental Impact Statement for the Beaverhead-Deerlodge National Forest Land and Resource Management Plan to Comply with

the District of Montana Court Order is incorporated by reference into this document.

Indicators/Measures to Use (species specific):

Indicators are components of a species habitat, life cycle, or other variable that can be evaluated to determine potential for effect to that species. Refer to page 41 for the big game effects indicators and below for the indicators used for the other wildlife species analyzed.

Acres of NFS lands open and closed to motorized winter recreation (OSV travel)

- Grizzly Bear

Acres of denning habitat on NFS lands open and closed to motorized winter recreation (OSV travel)

- Grizzly Bear
- Wolverine (both Heinemeyer et. al 2001 and Inman 2013)

Acres of general big game winter range open and closed to motorized winter recreation (OSV travel)

- Gray Wolf

Potential for disturbance from motorized winter recreation (OSV travel)

- Grizzly Bear
- Wolverine
- Canada lynx
- Gray Wolf

Effects for Big Game

Please see Big Game section starting on page 42 for potential disruption to big game wildlife habitat and potential harassment by OSV use specific by landscape. This section also compares differences between alternatives in minimizing those impacts. The summary is provided here as well.

Summary Statement

General Big Game: Across the Forest, the elk population is doing well. The population objectives for all the Hunt Districts combined across the Forest is 30,155 and the 2015 estimates of the elk population is 39,001. For reference, the 2007 estimate of the elk population was approximately 30,549 - 30,858. As you can see, the elk population has grown even with current management, including OSV use. There is only one Landscape (Boulder) where OSV travel has been identified as an issue for individual elk. Alternative 6 Modified added closures to reduce effects specifically to elk on the winter range in this Landscape. In general however, OSV travel is not affecting elk populations (Pers. com. MFWP 2016). There are two Landscapes (Boulder and Gravelly) where OSV travel has been identified as an issue for individual moose. Alternative 6 Modified added closures to reduce effects specifically to moose on the winter range in the Boulder Landscape. In the Gravelly Landscape, the local MFWP biologist recommended an education plan that involves signing in moose habitat. The Madison District Ranger agreed to proceed with this signing plan (beginning with the 2016/2017 winter season) to reduce effects

to moose wintering in willow bottoms along the West Fork of the Madison. There are a few landscapes where mule deer could potentially be disturbed by OSV travel however, it has not been identified as an issue for any mule deer populations across the Forest (Pers. com. MFWP 2016). As neither white-tailed deer nor antelope are significant species on the Forest, none of their winter ranges would be affected by OSV travel.

Bighorn Sheep: Overall, most of the alternatives close important bighorn sheep winter range from OSV travel. There are only two Landscapes where there are potential effects to bighorn sheep on the winter range; Gravelly and Pioneer. The Gravelly Landscape has the only bighorn sheep winter range with winter travel consistently through it. Recreationists drive through it on the main road to reach the unloading point. There is no off road travel in the bighorn sheep winter range and negative effects from off-road travel is not expected (pers. com. MFWP 2016). The Pioneer Landscape is the only other area where if bighorn sheep are in the area at the same time as the intermittent OSV use, effects could be increased stress, increased energy expenditures on these animals or displacement from preferred habitats on a large part of the winter range. Although these effects could be possible, MFWP has not identified snowmobile use in this area as a management challenge for this or any other herd on the BDNF (MFWP 2010).

Mountain Goats: Overall, Alternative 3, followed by Alternative 6 Modified, would reduce potential effects from OSV travel to mountain goats on the winter range. Even in Alternative 3 some mountain goat winter range remains open to winter motorized travel which could cause disturbance and displacement of mountain goats. There are only three Landscapes, Clark Fork Flint, Pioneer and Upper Rock Creek where potential effects may be possible (Pers. com. MFWP 2016). Although disturbance to individuals is possible, MFWP biologists did not recommended measures needed to further protect mountain goats and stated there is no evidence that OSV travel is affecting any of these populations on the BDNF (pers. com. MFWP 2016).

Effects for Grizzly Bears

Effects to grizzly bears from winter motorized travel were analyzed in two biological assessments for the Forest Plan. Both biological opinions received from USFWS on the Forest Plan have in-depth discussions on the general effects of snowmobiles to grizzly bears. These effects, relative to OSV use, are summarized here. The 2013 Biological Opinion (2013 BO) is in the project file (USFWS 2013b).

Effects of snowmobile use on grizzly bears are generally anecdotal and are primarily focused on grizzly bears entering or leaving dens. ***Possible*** effects identified were:

- Den abandonment,
- Loss of young,
- Increased energetic costs while bears were in dens or displaced away from suitable habitat if outside dens,
- Learned displacement from suitable habitat resulting from exposure to disturbance, and death.

The 2013 BO stated, “Impacts to emergent bears were identified as a higher concern than

impacts to denning bears." (USFWS 2013b). The BO also describes based on research (for example, Linnell et al. 2000, Reynolds et al.1986, Schoen et al, 1987 and Smith and Van Daele 1990), that reactions to stimuli varied among denning bears. Knight and Gutzweiler stated that it is likely that hibernating bears exposed to meaningless noise, with no negative consequences to the bear, habituate to this type of disturbance (Knight and Gutzweiler 1995). In reference to effects to denning grizzly bears from OSV travel, the service stated that, "Therefore, although some grizzly bears may be affected during the denning season, the Service believes that the magnitude of impacts during this time would not reach levels that would result in any injury to grizzly bears." (USFWS 2013b).

USFWS identified impacts to emergent bears, mainly females and cubs, as a higher concern than impacts to denning bears. Females with cubs have high energetic needs, and cubs have limited mobility for several weeks after leaving the den, therefore they remain in the den site area for several weeks after emergence from dens. Disturbance levels that cause a female to prematurely leave the den in spring or move from the den area could impair the fitness of the female and safety of the cubs (USFWS 2013b). Haroldson et al. (2002) found that the mean week of den emergence among female bears was the third week of April. However, female den emergence ranged from the third week in March to the fourth week in May. It is acknowledged that this is also the time when snow conditions are least conducive to snowmobiler activity (USFWS 2013b).

During consultation with the USFWS on Forest Plan activities, the USFWS stated that, "… spring snowmobiling areas and spring grizzly bear habitat are almost mutually exclusive in that the areas that would be suitable for spring snowmobiling (i.e. more snowpack) would not typically overlap with spring grizzly bear habitats (i.e. less snowpack in areas of early green-up)." The 2013 BO discusses that the potential interaction between OSV use and females and cubs is between third week of March and May 15 (the end of OSV travel on the BDNF). Such interaction would be limited due to low number of denning bears and the abundant amount of denning habitat. In the conclusion the USFWS states, "… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears" (USFWS, 2013b).

These effects from winter motorized use as stated above would be common to all alternatives however the potential for these types of effects to occur, if at all, are most likely on the Madison and Gravelly landscapes. They are the only landscapes where grizzly bears are year-round residents on the BDNF. There are no recorded grizzly bear dens outside these landscapes at this time. We acknowledge this could change through the life of the plan.

Consistent with the existing situation and for all proposed alternatives, there is no snowmobiling allowed within the portion of the Madison Landscape within the Greater Yellowstone Ecosystem recovery zone as it is within the Lee Metcalf Wilderness. There are no anticipated effects from winter motorized use to grizzly bears denning or emerging from their dens in this area. This would also be true for all wilderness and recommended wilderness areas across the BDNF for all action alternatives.

A concern for grizzly bear connectivity was raised during the public comment period. Grizzly bear habitat connectivity and security when bears are outside their den is a summer/fall issue.

The 2013 BO states: "…the primary concerns with motorized winter recreation with respect to grizzly bears are the potential effects associated with denning, den emergence, and spring habitat." (USFWS 2013b). Summer and fall habitats are not at issue since snowmobiling would not overlap with these seasons. OSV effects on spring habitat do not relate to connectivity because, during this time of year grizzly bears are not traveling across wide areas, rather most emerging bears move immediately to a known, reliable spring food source (USFWS 2013b). The BDNF forest plan, which was consulted on with USFWS, manages connectivity and secure areas through open motorized road and trail densities (OMRTD) during the summer (5/16-10/14) and fall seasons (10/15-12/1). Winter motorized use on the BDNF is managed by areas open and closed to that use, which is an indicator for this effects analysis (see Table 27).

Although there could possibly be some effects to grizzly bears emerging from their dens from winter motorized travel, it is important to understand the role of the BDNF outside the grizzly bear recovery zones. In 1993, the Grizzly Bear Recovery Plan outlined a strategy to recover grizzly bears built on the concept of recovery zones. The Recovery Plan acknowledged that "Grizzly bears outside the recovery zones probably experience a higher level of adverse impacts due to land management actions than do grizzly bears inside." It also says that "…such areas would not be managed primarily to provide or conserve grizzly bear habitat. Thus, we expect grizzly bears will occur at lower densities outside the recovery zones than within the recovery zones as a result of suboptimal habitat conditions including higher road densities, fewer areas secure from motorized access, and more human presence and activity." The recovery plan anticipated that "grizzly bears can and will exist outside recovery zone lines in many areas, but that the grizzly bears residing within the recovery zone were crucial to recovery goals ..." (USFWS, 1993). It is also important to note that the Northern Continental Divide Ecosystem and Greater Yellowstone Ecosystem grizzly bear populations have grown and have expanded outside of both primary conservation areas despite human presence and activity, (USFWS, 2011) including existing winter motorized travel. Table 27 displays the percentages of the BDNF open to winter motorized travel.

Table 27: Percent of NFS lands on the BDNF Open to Winter Motorized Travel

Landscape	Acres	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6 Modified
Big Hole	531,359	85%	68%	55%	85%	66%	67%
Boulder River	203,291	93%	93%	71%	93%	71%	65%
Clark Fork Flint	369,262	92%	91%	72%	92%	78%	83%
Gravelly	469,386	81%	78%	30%	81%	50%	50%
Jefferson River	190,613	100%	85%	52%	100%	52%	47%
Lima Tendoy	367,524	79%	79%	47%	79%	64%	55%

Landscape	Acres	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6 Modified
Madison	122,994	11%	3%	1%	11%	1%	2%
Pioneer	574,125	93%	79%	68%	93%	74%	74%
Tobacco Root	173,976	95%	95%	33%	95%	43%	48%
Upper Clark Fork	83,317	89%	86%	72%	89%	66%	67%
Upper Rock Creek	273,218	76%	76%	70%	76%	69%	49%
Totals	3,359,065	84%	78%	54%	84%	62%	60%

Table 28 displays the percentages of modeled grizzly bear denning habitat on NFS lands open and closed to winter motorized travel. Figure D- 1 displays the grizzly bear recovery zones and the BDNF, Figure D- 2 displays all the modeled grizzly bear denning habitat. See Figure D- 3 through Figure D- 8 for grizzly bear denning habitat maps by alternative.

Table 28: Percent of Grizzly Bear Modeled Denning Habitat on NFS Lands on the BDNF Open to Winter Motorized Travel

Landscape	Denning Habitat Acres	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6 Modified
Big Hole	32,008	97%	58%	37%	98%	57%	57%
Boulder River	475	91%	91%	72%	91%	73%	55%
Clark Fork Flint	14,364	95%	95%	77%	95%	77%	89%
Gravelly	15,482	66%	64%	19%	66%	32%	32%
Jefferson River	3,757	100%	96%	50%	100%	51%	35%
Lima Tendoy	25,798	79%	79%	59%	79%	69%	64%
Madison	28,677	12%	3%	0.7%	12%	0.7%	2%
Pioneer	30,407	95%	79%	66%	95%	71%	71%
Tobacco Root	20,771	97%	97%	29%	97%	42%	49%

Landscape	Denning Habitat Acres	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6 Modified
Upper Clark Fork	111	89%	87%	72%	89%	63%	64%
Upper Rock Creek	9,126	85%	85%	80%	85%	77%	55%
Totals	180,975	83%	74%	48%	84%	56%	55%

Forestwide

Forestwide, Alternative 1 is the existing management in which approximately 2,832,530 acres or 84% of the Forest is available for winter motorized travel and 526,537 acres or 16% of the Forest in a non-motorized winter setting. Alternative also retains 407,635 acres or 83% of grizzly bear denning habitat is available for winter motorized travel and 80,602 acres or 17% of the Forest in a non-motorized winter setting. This alternative along with Alternatives 2 and 4 generally close the least modeled grizzly bear denning habitat to OSV travel. The only Landscape that is within a grizzly bear recovery zone (GYE) is the Madison. The portion of that Landscape within the GYE boundary is also within the Lee Metcalf Wilderness which does not allow winter motorized use and therefore no effects from OSV travel are anticipated. The local MFWP biologist verified that there is no OSV travel in this wilderness. Most of the Landscapes on the Forest are either within an official grizzly bear distribution area or have had an unconfirmed grizzly bear sighting. The Jefferson River Landscape is the only exception. It is acknowledged that winter motorized use, especially in cross country OSV use areas could potentially affect grizzly bears emerging from their dens in the spring. The only landscape where this is likely is the Gravelly Landscape. Bears live in this landscape year round and there is regular and intermittent OSV use scattered through the Landscape. Although effects are possible Landscapes, other than the Madison, the USFWS in the 2013 BO stated, ““… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears.” (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 2 proposes to decrease the amount of Forest available for winter motorized travel to 2,613,066 acres or 78% and increase the non-motorized winter designations to 746,000 acres or 22% of the Forest. Alternative 2 also proposes to decrease acres of grizzly bear denning habitat open to winter motorized travel to approximately 359,424 acres or 74% of the habitat. Conversely this increases the acres of grizzly bear denning habitat in a non-motorized allocation across the forest to approximately 128,813 acres or 26% of the habitat. Although this Alternative closes modeled grizzly bear denning habitat on approximately 48,200 more acres, generally the effects are the same as Alternative 1. Additional closures are mostly in areas of seldom, to no, OSV use. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. Although effects are possible on Landscapes, other than the Madison, the USFWS in the 2013 BO stated, “… the

Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 3 proposes to decrease the amount of Forest available for winter motorized travel to 1,818,537 acres or 1,540,529 acres or 55% and increase the non-motorized winter designations to 45% of the Forest. Alternative 3 also proposes to decrease acres of grizzly bear denning habitat open to winter motorized travel to approximately 233,316 acres or 48% of the habitat. Conversely this increases the acres of grizzly bear denning habitat in a non-motorized classification across the forest to approximately 254,921 acres or 52% of the habitat. Alternative 3 close additional areas of modeled grizzly bear denning habitat on approximately 174,300 more acres. In seven out of the eleven Landscapes this provides the most closures on modeled grizzly bear denning habitat. Alternative 3 generally closed not only areas of seldom, to no use, but regularly and intermittently used OSV cross county areas and routes. The benefit to closing areas in seldom, to no use, is that in good snow years when OSV use may extend out from the typical areas there would be closures in denning habitat from unexpected OSV use. Although effects are possible on Landscapes, other than the Madison, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 4 proposes to increase the amount of Forest available for winter motorized travel to 2,834,762 acres or 85% and decrease the non-motorized winter designations to 524,304 acres or 15% of the Forest. Alternative 4 also proposes however to decrease acres of grizzly bear denning habitat open to winter motorized travel to approximately 408,284 acres or 84% of the habitat. Conversely this increases the acres of grizzly bear denning habitat in a non-motorized classification across the forest to approximately 79,953 acres or 16% of the habitat. This alternative actually opened denning habitat to OSV travel by approximately 650 acres, all in the Big Hole Landscape and closes the least amount of grizzly bear denning habitat. Even so, the effects are the same as Alternative 1. Although effects are possible on Landscapes, other than the Madison, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 5 proposes to decrease the amount of Forest available for winter motorized travel to 2,098,875 acres or 1,260,191 acres or 63% and increase the non-motorized winter designations to 37% of the Forest. Alternative 5 also proposes to decrease acres of grizzly bear denning habitat open to winter motorized travel to approximately 273,391 acres or 56% of the habitat. Conversely this increases the acres of grizzly bear denning habitat in a non-motorized classification across the forest to approximately 214,846 acres or 44% of the habitat. Alternative 5 provides additional closures in modeled grizzly bear denning habitat on approximately 134,200 more acres. In three out of the eleven Landscapes this alternative closes the most modeled grizzly bear denning habitat to OSV travel. The effects of this alternative are

similar to Alternative 3 which generally closed not only areas of seldom to no use but regularly and intermittently used OSV cross county areas and routes. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. Although effects are possible on Landscapes, other than the Madison, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 6 Modified proposes to decrease the amount of Forest available for winter motorized travel to 2,022,514 acres or 61% and increase the non-motorized winter designations to 1,336,553 acres or 39% of the Forest. Alternative 6 Modified also proposes to decrease acres of grizzly bear denning habitat open to winter motorized travel to approximately 269,569 acres or 55% of the habitat. Conversely this increases the acres of grizzly bear denning habitat in a non-motorized classification across the forest to approximately 218,668 acres or 45% of the habitat. This alternative provides additional closures in modeled grizzly bear denning habitat on approximately 138,000 more acres. In three out of the eleven Landscapes closes the most modeled grizzly bear denning habitat to OSV travel. This alternative would close the second largest number of acres of modeled grizzly bear denning habitat to OSV travel. The effects of this Alternative are similar to Alternative 3 which generally closed not only areas of seldom to no use but regularly and intermittently used OSV cross county areas and routes. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. Although effects are possible on Landscapes, other than the Madison, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Big Hole Landscape

Alternative 1 is the existing management in which approximately 44,715 acres or 85% of this Landscape is available for winter motorized travel and 81,644 acres or 15% of the Big Hole Landscape in a non-motorized winter setting. Alternative 1 also proposes to keep approximately 49,901 acres or 97% of grizzly bear denning habitat open to OSV travel in the Big Hole Landscape. This leaves approximately 1,628 acres or 3% of grizzly bear denning habitat in a non-motorized classification in this Landscape. This alternative and Alternative 4 close the least number of acres of denning habitat for grizzly bears. The western and southwestern edge of the Landscape has both regular and intermittent use and the most modeled denning habitat. It is also the area where snow is likely to still be present later in the year. This area is not within a recovery zone and not within the official distribution map, but in the early 1980s there was an unconfirmed of one grizzly in this Landscape. If there is a denning grizzly in the area, the chance for disturbance to them when emerging from their dens is highest for males starting in late February and for females with cubs the third week in March. There is a chance in the Big Hole Landscape that if there is a denning grizzly, there could be OSV use in this area when they

would emerge from their dens and they could be disturbed or displaced. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 2 proposes to decrease the amount of this Landscape available for winter motorized travel to 363,680 acres or 68% and increase the non-motorized winter designations to 167,679 acres or 32% of the Big Hole Landscape. Alternative 2 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 58% (29,704 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 42% (21,825 acres). Approximately 20,200 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. This alternative does close potential denning habitat that is regularly and intermittently used by OSVs. This alternative is an improvement over Alternatives 1 and 4. Again the area most affected would be the west, southwest edge of this Landscape. Although conditions for potentially denning grizzly bears have improved, there is still denning habitat open in areas used regularly by OSVs. Effects would potentially be the same as in Alternatives 1 and 4 (see above), but on a lesser scale; potential for conflicts to emerging bears from late February through the end of the winter motorized season. However, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 3 proposes to decrease the amount of this Landscape available for winter motorized travel to 294,070 acres or 55% and increase the non-motorized winter designations to 237,289 acres or 45% of the Big Hole Landscape. Alternative 3 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 37% (18,872 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 63% (32,658 acres). Approximately 31,000 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. This alternative would close the largest number of acres of grizzly bear denning habitat to OSV travel. In the west and southwest portion of the Landscape, most of the modeled denning habitat that is regularly used and all, of the denning habitat that is intermittently used by OSVs, would be closed to winter motorized travel. In this Alternative there is a very slight chance that an emerging grizzly could be affected by winter motorized travel as most of the best modeled habitat in the Landscape would be closed. The USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 4 retains the existing management at 451,433 acres or 85% of this Landscape available for winter motorized travel and 79,926 acres or 15% of the Big Hole Landscape in a non-motorized winter setting. Alternative 4 also proposes to increase areas open to winter

motorized travel in grizzly bear denning habitat to 50,513 acres or 98%. Conversely, this decreases the acres of grizzly bear denning habitat in a non-motorized classification to 1,016 acres or 2% of the winter range. This alternative closes the least amount of denning habitat for grizzly bears. It opens up and area that was previously closed in an area that is used intermittently by OSVs. The effects to this Alternative are identical to Alternative 1. If there are grizzly bears emerging from their dens in the west, southwest part of the Landscape, they could be disturbed by winter motorized travel here. Although effects are possible in this Landscape the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 5 proposes to decrease the amount of this Landscape available for winter motorized travel to 352,465 acres or 66% and increase the non-motorized winter designations to 178,894 acres or 34% of the Big Hole Landscape. Alternative 5 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 57% (29,136 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 43% (22,393 acres). Approximately 20,700 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. Although more modeled grizzly bear denning habitat is closed to OSV use in this Alternative, the effects are similar as in Alternative 2. If there are grizzly bears emerging from their dens in the west, southwest part of the Landscape, they could be disturbed by winter motorized travel. Although effects are possible in this Landscape, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 6 Modified proposes to decrease the amount of this Landscape available for winter motorized travel to 353,772 acres or 67% and increase the non-motorized winter designations to 177,587 acres of 33% of the Big Hole Landscape. Alternative 6 Modified also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 57% (29,224 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 43% (22,305 acres). Approximately 20,700 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. This alternative provides more closures in modeled grizzly bear denning than Alternative 2, but slightly less than Alternative 5. The effects of this Alternative would be similar to both those alternatives. If there are grizzly bears emerging from their dens in the west, southwest part of the Landscape, they could be disturbed by winter motorized travel. Although effects are possible in this Landscape, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Boulder River Landscape

Alternative 1 is the existing management in which approximately 189,131 acres or 93% of this Landscape available for winter motorized travel and 14,160 acres or 7% of the Boulder River Landscape in a non-motorized winter setting. Alternative 1 also proposes to keep approximately 10,691 acres or 91% of grizzly bear denning habitat open to winter motorized travel in the Boulder River Landscape. This leaves approximately 1,111 acres or 9% of grizzly bear denning habitat in a non-motorized classification in this Landscape. This alternative along with Alternatives 2 and 4 close the least number of acres of modeled grizzly bear denning habitat to OSV use. There is very little overlap however with grizzly bear denning habitat and regular or intermediate use by OSVs in this Landscape. The main OSV use is in the northeastern part of the Landscape where there is cross country travel and some route use, in American and Olsen Gulch an area. The cross country travel area north of the town of Basin is where there is the potential for effects to emerging grizzly bears. There have been several official grizzly bear sightings in the Boulder Landscape however no sows with cubs and although suspected, no grizzly bear dens have been confirmed. If there is a denning grizzly in the area, the chance for disturbance/displacement to them when emerging from their dens is highest for males starting in late February and for females with cubs the third week in March in the area north of Basin. Conflicts in the rest of the Landscape are unlikely. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 2 retains the existing management at 189,132 acres or 93% of this Landscape available for winter motorized travel and 14,159 acres or 7% of the Boulder River Landscape in a non-motorized winter setting. Alternative 2 also proposes to retain the existing areas open to winter motorized travel in grizzly bear denning habitat at 91% (10,691 acres). This conversely retains acres of grizzly bear denning habitat in a non-motorized classification at 9% (1,111 acres). Effects from this Alternative are identical to Alternative 1 and 4. There are potential conflicts to emerging grizzly bears from late February through the end of the winter motorized season north of Basin. However, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 3 proposes to decrease the amount of this Landscape available for winter motorized travel to 143,581 acres or 71% and increase the non-motorized winter designations to 59,710 acres or 29% of the Boulder River Landscape. Alternative 3 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 72% (8,490 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 28% (3,312 acres). Approximately 2,200 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. Although

there are additional closures in modeled grizzly bear denning habitat, the closures are not within the cross country areas where the most potential for conflict exists. Effects from this Alternative are similar to Alternatives 1, 2, and 4. There are potential conflicts to emerging grizzly bears from late February through the end of the winter motorized season north of Basin. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 4 retains the existing management at 189,132 acres or 93% of this Landscape available for winter motorized travel and 14,159 acres or 7% of the Boulder River Landscape in a non-motorized winter setting. Alternative 4 also proposes to retain the existing areas open to winter motorized travel in grizzly bear denning habitat at 91% (10,691 acres). This conversely retains acres of grizzly bear denning habitat in a non-motorized classification at 9% (1,111 acres). Effects from this Alternative are identical to Alternative 1 and 2. There are potential conflicts to emerging bears from late February through the end of the winter motorized season. Alternative 3 proposes to decrease the amount of this Landscape available for winter motorized travel to 143,581 acres or 71% and increase the non-motorized winter designations to 59,710 acres or 29% of the Boulder River Landscape. Alternative 3 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 72% (8,490 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 28% (3,312 acres). Approximately 2,200 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. Although there are additional closures in modeled grizzly bear denning habitat, the closures are not within the cross country areas where the most potential for conflict exists. Effects from this Alternative are similar to Alternatives 1, 2, and 4. There are potential conflicts to emerging grizzly bears from late February through the end of the winter motorized season north of Basin. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 5 proposes to decrease the amount of this Landscape available for winter motorized travel to 145,079 acres or 71% and increase the non-motorized winter designations to 58,213 acres or 29% of the Boulder River Landscape. Alternative 5 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 73% (8,588 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 27% (3,214 acres). Approximately 2,100 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. Although there are additional closures in modeled grizzly bear denning habitat, the closures are not within the cross country areas where the most potential for conflict exists. Effects from this Alternative are similar to Alternatives 1, 2, 3 and 4. There are potential conflicts to emerging grizzly bears from late February through the end of the winter motorized season north of Basin.

Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 6 Modified proposes to decrease the amount of this Landscape available for winter motorized travel to 132,448 acres or 65% and increase the non-motorized winter designations to 70,844 acres or 35% of the Boulder River Landscape. Alternative 6 Modified also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 55% (6,516 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 45% (5,286 acres). Approximately 4,200 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. This alternative would close the largest amount of modeled denning habitat to OSV use. Although there are additional closures in modeled grizzly bear denning habitat, the closures are not within the cross country areas where the most potential for conflict exists. Effects from this Alternative are similar to Alternatives 1, 2, 3 and 4 but the difference would be in good snow years when OSV use may extend out from the typical areas. There are additional closures north of Basin that would close additional potential denning habitat to OSV use. There are potential conflicts to emerging grizzly bears from late February through the end of the winter motorized season north of Basin. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Clark Fork Flint Landscape

Alternative 1 is the existing management in which approximately which 341,280 acres or 92% of this Landscape available for winter motorized travel and 27,982 acres or 8% of the Clark Fork Flint Landscape in a non-motorized winter setting. Alternative 1 also proposes to keep approximately 17,937 acres or 95% of grizzly bear denning habitat open to winter motorized travel in the Clark Fork landscape. This leaves approximately 886 acres or 5% of grizzly bear denning habitat in a non-motorized classification in this landscape. This alternative along with Alternatives 2 and 4 close the least number of acres of modeled grizzly bear habitat to OSV use. Although grizzly bears could be affected by use on routes, they are known to avoid regularly used routes. It is more likely that conflicts between emerging grizzly bears and winter motorized use would be in areas that receive regular or intermittent cross country use. Although there are several areas with regular OSV use, they are not within modeled grizzly bear denning habitat. There are however areas of intermittent OSV use spread out across the Landscape that do overlap with denning habitat. There have been several official grizzly bear sightings in the Clark Fork Flint Landscape however no sows with cubs and no grizzly bear dens have been confirmed. Although the OSV use is intermittent in the modeled denning habitat, if there is a denning grizzly in the area, the chance for disturbance/displacement to them when emerging from their dens is highest for males starting in late February and for females with

cubs the third week in March. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 2 proposes to decrease the amount of this Landscape available for winter motorized travel to 337,582 acres or 91% and increase the non-motorized winter designations to 31,680 acres or 9% of the Clark Fork Flint landscape. Although the percentage of winter motorized travel didn't change for the Clark Fork Flint Landscape Alternative 2 also proposes to increase slightly areas open to winter motorized travel in grizzly bear denning habitat to 95% (17,959 acres). Conversely, this decreases the acres of grizzly bear denning habitat in a non-motorized classification to 5% (865 acres). Effects to modeled grizzly bear denning habitat would be similar to Alternatives 1 and 4. There could be potential conflicts to emerging grizzly bears from late February through the end of the winter motorized season across the Landscape. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 3 proposes to decrease the amount of this Landscape available for winter motorized travel to 265,423 acres or 72% and increase the non-motorized winter designations to 103,839 acres or 28% of the Clark Fork Flint landscape. Alternative 3 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 77% (14,509 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 23% (4,314 acres). Approximately 3,400 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative, which along with Alternative 5, closes the most number of acres of modeled grizzly bear denning habitat to OSV use. Although there are additional closures in modeled grizzly bear denning habitat, they are not within the cross country areas where the most potential for conflict exists. Effects from this Alternative are similar to Alternatives 1, 2, and 4 but the difference would be in good snow years when OSV use may extend out from the typical areas. There are still potential conflicts to emerging grizzly bears from late February through the end of the winter motorized season across the Landscape. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 4 retains the existing management at 341,516 acres or 92% of this Landscape available for winter motorized travel and 27,746 acres or 8% of the Clark Fork Flint Landscape in a non-motorized winter setting. Although the percentage of winter motorized travel didn't change for the Clark Fork Flint Landscape Alternative 4 also proposes to increase slightly areas open to winter motorized travel in grizzly bear denning habitat to 95% (17,959 acres).

Conversely, this decreases the acres of grizzly bear denning habitat in a non-motorized classification to 5% (865 acres). This alternative closes the least number of acres of modeled grizzly bear denning habitat to OSV travel. Effects to modeled grizzly bear denning habitat would be similar to Alternatives 1 and 2. There are potential conflicts to emerging grizzly bears from late February through the end of the winter motorized season across the Landscape. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 5 proposes to decrease the amount of this Landscape available for winter motorized travel to 289,242 acres or 78% and increase the non-motorized winter designations to 80,020 acres or 22% of the Clark Fork Flint landscape. Alternative 5 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 77% (14,404 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 23% (4,420 acres). Effects from this Alternative are identical to Alternative 3 although there are additional closures to OSV use in grizzly bear denning habitat. There are still potential conflicts to emerging grizzly bears from late February through the end of the winter motorized season across the Landscape. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 6 Modified proposes to decrease the amount of this landscape available for winter motorized travel to 306,554 acres or 83% and increase the non-motorized winter designations to 62,708 acres or 17% of the Clark Fork Flint landscape. Alternative 6 Modified also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 89% (16,728 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 11% (2,095 acres). Approximately 1,200 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. Although there are additional closures in modeled grizzly bear denning habitat, the closures are not within the cross country areas where the most potential for conflict exists. Effects from this Alternative are similar to Alternatives 1, 2, and 4. There are potential conflicts to emerging grizzly bears from late February through the end of the winter motorized season across the Landscape. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Gravelly Landscape

Alternative 1 is the existing management in which approximately 377,946 acres or 81% of this landscape is available for winter motorized travel and 91,441 acres or 19% of the Gravelly landscape in a non-motorized winter setting. Alternative 1 also proposes to keep approximately 50,030 acres or 66% of grizzly bear denning habitat open to winter motorized travel in the Gravelly landscape. This leaves approximately 25,243 acres or 34% of grizzly bear denning habitat in a non-motorized classification in this landscape. This alternative, along with Alternative 4, closes the least number of acres in modeled grizzly bear denning habitat to OSVs. This landscape, although not in the recovery zone, is with the GYA grizzly bear distribution and is known to be occupied by both male and female grizzly bears with cubs. According to the use map, approximately 12% of the Landscape is regularly used for winter motorized travel and approximately 2% is used intermittently, 66% is used seldom to none and 19% is closed. Most of the contiguous modeled grizzly bear denning habitat in the Snowcrest Mountains is currently closed to OSV use. The south part of the landscape (Mount Jefferson area) has fairly regular cross county OSV use but the majority of the landscape is accessed by a series of routes with cross country use where they join in the center (Lion and Cave Mountain areas). As with the other landscapes, the likelihood of disturbing a grizzly emerging from its den would be in the cross country areas, as bears already avoid regularly used routes. Due to the regular OSV cross country use in the modeled denning habitat, if there is a denning grizzly in the area, the chance for disturbance/displacement to them when emerging from their dens is highest for males starting in late February and for females with cubs the third week in March. As this area is used by grizzly bears consistently, this is one of the most likely areas on the Forest to have potential conflicts with OSV. There have been no reports of interactions between grizzly bears and OSV users to date. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 2 proposes to decrease the amount of this landscape available for winter motorized travel to 364,884 acres or 78% and increase the non-motorized winter designations to 104,502 acres or 22% of the Gravelly landscape. Alternative 2 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 64% (47,926 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 36% (27,347 acres). This alternative closes an additional 2,100 acres of grizzly bear modeled denning habitat to OSV travel. These closures are mainly in the Snowcrest Mountains and the Mount Jefferson areas. Although additional closures are proposed in modeled denning areas, the effects to grizzly bears would still be similar to Alternative 1. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 3 proposes to decrease the amount of this landscape available for winter motorized travel to 141,192 acres or 30% and increase the non-motorized winter designations to 328,194 acres or 70% of the Gravelly landscape. Alternative 3 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 19% (14,166 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 81% (61,107 acres). This alternative closes an additional 35,800 acres of grizzly bear modeled denning habitat to OSV travel. This alternative closes the greatest number of acres of modeled grizzly bear denning habitat to OSV travel. The main difference from Alternative 1 is that the Snowcrest Mountains and the Mount Jefferson area would be completely closed. The effects from winter motorized travel would be eliminated in the Snowcrest Mountains, Lion Mountain, Cave Mountain, and in the Mount Jefferson Area. There would still be an OSV cross country area in the southern part of the landscape, north ok Elk Mountain although it is reduced. The OSV cross country travel area where the routes join would also be greatly reduced. Although potential disturbance/displacement effects to emerging grizzly bears would be greatly reduced, as there are still cross country OSV areas being used regularly and there are grizzly bears that frequent this landscape there could still be conflicts between OSVs and grizzly bears. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ““… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears.” (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 4 retains the existing management at 377,946 acres or 81% of this landscape available for winter motorized travel and 91,441 acres or 19% of the Gravelly landscape in a non-motorized winter setting. Alternative 4 also proposes to retain the existing areas open to winter motorized travel in grizzly bear denning habitat at 66% (50,030 acres). This conversely retains acres of grizzly bear denning habitat in a non-motorized classification at 34% (25,243 acres). The effects to grizzly bear denning habitat are exactly the same as Alternative 1. As this area is used by grizzly bears consistently, this is one of the most likely areas on the Forest to have conflicts with OSV use. There have been no reports of interactions between grizzly bears and OSV users to date. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ““… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears.” (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 5 proposes to decrease the amount of this landscape available for winter motorized travel to 234,821 acres or 50% and increase the non-motorized winter designations to 234,566 acres or 50% of the Gravelly landscape. Alternative 5 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 32% (23,769 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 68% (51,504 acres). This alternative closes an additional 26,300 acres in grizzly bear modeled denning habitat to OSV travel. The main differences from Alternative 1 are that the Snowcrest Mountains and the Mount Jefferson area would be completely closed. The effects from winter motorized travel would be eliminated in the Snowcrest Mountains and in the Mount Jefferson

Area. Cave Mountain is another area with increased closures. The Lion Mountain area which has modeled denning habitat and also receives regular use by OSVs is one of the few places left open to winter motorized travel in this Alternative. Although potential disturbance/displacement effects to emerging grizzly bears would be greatly reduced, as there are still cross country OSV areas being used regularly and there are grizzly bears that frequent this landscape there could still be conflicts between OSVs and grizzly bears. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 6 Modified proposes to decrease the amount of this landscape available for winter motorized travel to 236,963 acres or 50% and increase the non-motorized winter designations to 232,423 acres or 50% of the Gravelly landscape. Alternative 6 Modified also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 32% (24,043 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 68% (51,230 acres). Effects of this Alternative are identical to Alternative 5, see above.

Jefferson River Landscape

Alternative 1 is the existing management in which all of the Jefferson River landscape is available for winter motorized travel and none is in a non-motorized winter setting. Alternative 1 also proposes to keep all (12,049 acres) the grizzly bear denning habitat open to winter motorized travel in the Jefferson River landscape. Although all modeled denning habitat is open to OSV use, there are no areas of regular use and only 13% of the landscape is used intermittently. Of the intermittent use, there are really only two areas where OSV use and grizzly bear denning habitat are in conflict, the Delmoe Lake area, and the Hells Canyon area. There have been no grizzly bear sightings, official or unverified in this landscape. The fact that there is only intermittent use in two modeled denning areas and that no grizzly bears have been seen in this landscape, the chance of conflicts with OSVs is unlikely. Although unlikely, if there is a denning grizzly in the area, there would be a slight chance for disturbance/displacement to them when emerging from their dens. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 2 proposes to decrease the amount of this landscape available for winter motorized travel to 162,063 acres or 85% and increase the non-motorized winter designations to 28,551 acres or 15% of the Jefferson River landscape. Alternative 2 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 96% (11,610 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 4% (439 acres). This alternative closes an additional 400 acres of grizzly bear

modeled denning habitat to OSV travel. Although there are more acres closed, the effects from this Alternative are the same as for Alternative 1. Although unlikely, there would be a slight chance for disturbance/displacement to them when emerging from their dens. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 3 proposes to decrease the amount of this landscape available for winter motorized travel to 98,329 acres or 52% and increase the non-motorized winter designations to 92,285 acres or 48% of the Jefferson River landscape. Alternative 3 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 50% (6,061 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 50% (5,987 acres). Approximately 6,000 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. Although there are additional closures in modeled grizzly bear denning habitat, the closures are not within the intermittent use areas where the most potential for conflict exists. Effects from this Alternative are similar to Alternatives 1 and 2 but the difference would be in good snow years when OSV use may extend out from the typical areas. There are additional OSV travel closures in denning habitat. Although reduced, there are still potential conflicts to emerging grizzly bears from late February through the end of the winter motorized season. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 4 retains the existing management with the entire landscape available for winter motorized travel and none of the Jefferson River landscape in a non-motorized winter setting. Alternative 4 also proposes to keep all (12,049 acres) the grizzly bear denning habitat open to winter motorized travel in the Jefferson River landscape. Effects to modeled grizzly bear denning habitat would be identical to Alternative 1. Although unlikely, there would be a slight chance for disturbance/displacement to them when emerging from their dens. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 5 proposes to decrease the amount of this landscape available for winter motorized travel to 99,525 acres or 52% and increase the non-motorized winter designations to 91,088 acres or 48% of the Jefferson River landscape. Alternative 5 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 51% (6,168 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 49% (5,881 acres). Approximately 5,900 additional acres of modeled grizzly

bear denning habitat would be closed to winter motorized use under this Alternative. The effects of this Alternative are very similar to Alternative 3, increased closures in good snow years when OSV use may extend out from the typical areas. There are additional closures that would close more denning habitat to OSV use. Although reduced, there are still potential conflicts to emerging grizzly bears from late February through the end of the winter motorized season. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 6 Modified proposes to decrease the amount of this landscape available for winter motorized travel to 90,190 acres or 47% and increase the non-motorized winter designations to 100,423 acres or 53% of the Jefferson River landscape. Alternative 6 Modified also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 35% (4,157 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 65% (7,892 acres). Approximately 7,900 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. This alternative closes the most number of acres of modeled grizzly bear denning habitat to OSV travel. Even so, the closures are not in areas utilized by OSVs. The effects of this Alternative are similar to Alternatives 3 and 5, increased closures in good snow years when OSV use may extend out from the typical areas. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Lima Tendoy Landscape

Alternative 1 is the existing management in which approximately 291,963 acres or 79% of this landscape is available for winter motorized travel and 75,561 or 21% of the Lima Tendoy landscape in a non-motorized winter setting. Alternative 1 also proposes to keep approximately 56,177 acres or 79% of grizzly bear denning habitat open to winter motorized travel in the Lima Tendoy landscape. This leaves approximately 15,155 acres or 21% of grizzly bear denning habitat in a non-motorized classification in this landscape. This alternative along with Alternatives 2 and 4 closes the least number of acres of modeled grizzly bear denning habitat to OSV travel. However, the northern part (10%) of the landscape along the Continental Divide in the Beaverhead Mountains and north of Selway and Eunice creeks is really the only part that is regularly or intermittently, used for winter motorized travel. The rest of the Landscape doesn't have enough snow most years to use OSVs. Even though the Lima Tendoy Landscape is not within an official grizzly distribution area, between September 1999 and September of 2001 there were four unconfirmed grizzly bear sightings here. None of these sightings were in the areas of OSV use. As there is a chance for a grizzly bear to be in this landscape and if they are denning, there would be a slight chance for disturbance/displacement to them when emerging from their dens, but only in the northern area. This effect is most likely for males starting in late

February and for females with cubs the third week in March. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 2 retains the existing management at 291,963 acres or 79% of this landscape available for winter motorized travel and 75,561 acres or 21% of the Lima Tendoy landscape in a non-motorized winter setting. Alternative 2 also proposes to retain the existing areas open to winter motorized travel in grizzly bear denning habitat at 79% (56,177 acres). This conversely retains acres of grizzly bear denning habitat in a non-motorized classification at 21% (15,155 acres). The effects of this Alternative are exactly like Alternatives 1 and 4. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 3 proposes to decrease the amount of this landscape available for winter motorized travel to 174,001 acres or 47% and increase the non-motorized winter designations to 193,523 acres or 53% of the Lima Tendoy landscape. Alternative 3 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 59% (42,427 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 41% (28,905 acres). This alternative closes an additional 13,700 acres of grizzly bear modeled denning habitat to OSV travel. Although this Alternative closes the most number of acres in modeled grizzly bear denning habitat to OSV travel, it is all in the southern part of the Landscape where there is seldom to no use. The effects of this Alternative are similar to Alternatives 1, and 2 with the exception of increased closures in good snow years when OSV use may extend out from the typical areas. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 4 retains the existing management at 291,963 acres or 79% of this landscape available for winter motorized travel and 75,561 acres or 21% of the Lima Tendoy landscape in a non-motorized winter setting. Alternative 4 also proposes to retain the existing areas open to winter motorized travel in grizzly bear denning habitat at 79% (56,177 acres). This conversely retains acres of grizzly bear denning habitat in a non-motorized classification at 21% (15,155 acres). The effects of this Alternative are exactly like Alternatives 1 and 2. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with

existing management, including OSV travel.

Alternative 5 proposes to decrease the amount of this landscape available for winter motorized travel to 234,320 acres or 64% and increase the non-motorized winter designations to 133,204 acres or 36% of the Lima Tendoy landscape. Alternative 5 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 69% (48,880 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 31% (22,452 acres). This alternative closes an additional 7,300 acres of grizzly bear modeled denning habitat to OSV travel. Although this Alternative provides additional closures for modeled grizzly bear denning habitat, it is all in the southern part of the Landscape where there is seldom to no use. The effects of this Alternative are similar to Alternatives 3 in that there would be increased closures in good snow years when OSV use may extend out from the typical areas. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 6 Modified proposes to decrease the amount of this landscape available for winter motorized travel to 202,401 acres or 55% and increase the non-motorized winter designations to 165,123 acres or 45% of the Lima Tendoy landscape. Alternative 6 Modified also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 64% (45,382 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 36% (25,950 acres). This alternative closes an additional 10,800 acres grizzly bear modeled denning habitat to OSV travel. The effects of this Alternative are similar to Alternatives 3 in that there would be increased closures in good snow years when OSV use may extend out from the typical areas. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Madison Landscape

Alternative 1 is the existing management in which approximately 13,191 acres or 11% of this landscape is available for winter motorized travel and 109,803 acres or 89% of the Madison landscape in a non-motorized winter setting with. Alternative 1 also proposes to keep approximately 3,331 acres or 12% of grizzly bear denning habitat open to winter motorized travel in the Madison landscape. This leaves approximately 24,008 acres or 88% of grizzly bear denning habitat in a non-motorized classification in this landscape. Most of this Landscape is within the GYE Recovery Zone. There is no snowmobiling allowed within the portion of the Madison landscape within the Greater Yellowstone Ecosystem recovery zone, as it is within the Lee Metcalf Wilderness. There are no anticipated effects from winter motorized use to grizzly bears denning or emerging from their dens in this area. Although there is still a portion of this landscape open to winter motorized travel, according to BDNF recreation staff and the local MFWP biologist, there is no use in that area. There are no effects/conflicts to emerging grizzly

bears expected in this landscape under this Alternative.

Alternative 2 proposes to decrease the amount of this landscape available for winter motorized travel to 3,685 acres or 3% and increase the non-motorized winter designations to 119,309 acres or 97% of the Madison landscape. Alternative 2 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 3% (723 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 97% (26,616 acres). As in Alternative 1, there are no effects/conflicts to emerging grizzly bears expected in this landscape under this Alternative as there is no OSV use in this landscape, even though it is allowed.

Alternative 3 proposes to decrease the amount of this landscape available for winter motorized travel to 676 acres or 1% and increase the non-motorized winter designations to 122,318 acres or 99% of the Madison landscape. Alternative 3 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 0.7% (191 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 99.3% (27,147 acres). As in Alternatives 1 and 2, there are no effects/conflicts to emerging grizzly bears expected in this landscape under this Alternative as there is no OSV use in this landscape, even though it is allowed.

Alternative 4 retains the existing management at 13,198 acres or 11% of this landscape available for winter motorized travel and 109,796 acres or 89% of the Madison landscape in a non-motorized winter setting. Although the percentage of winter motorized travel didn't change for the Madison Landscape, Alternative 4 also proposes to increase slightly areas open to winter motorized travel in grizzly bear denning habitat to 3,335 acres but it is still 12% of the habitat. Conversely, this decreases the acres of grizzly bear denning habitat in a non-motorized classification to 24,004 acres but still 88%. As in Alternatives 1, 2, and 3, there are no effects/conflicts to emerging grizzly bears expected in this landscape under this Alternative as there is no OSV use in this landscape, even though it is allowed.

Alternative 5 proposes to decrease the amount of this landscape available for winter motorized travel to 834 acres or 1% and increase the non-motorized winter designations to 122,161 acres or 99% of the Madison landscape. Alternative 5 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 0.7% (203 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 99.3% (27,135 acres). As in Alternatives 1, 2, 3, and 4, there are no effects/conflicts to emerging grizzly bears expected in this landscape under this Alternative as there is no OSV use in this landscape, even though it is allowed.

Alternative 6 Modified proposes to decrease the amount of this landscape available for winter motorized travel to 2,730 acres or 2% and increase the non-motorized winter designations to 120,264 acres or 98% of the Madison landscape. Alternative 6 Modified also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 2% (531 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 98% (26,808 acres). As in Alternatives 1, 2, 3, 4, and 5, there are no effects/conflicts to emerging grizzly bears expected in this landscape under this Alternative as there is no OSV use in this landscape, even though it is allowed.

Pioneer Landscape

Alternative 1 is the existing management in which approximately 531,932 acres or 93% of this landscape is available for winter motorized travel and 42,193 or 7% of the Pioneer landscape in a non-motorized winter setting with. Alternative 1 also proposes to keep approximately 140,582 acres or 95% of grizzly bear denning habitat open to winter motorized travel in the Pioneer landscape. This leaves approximately 8,097 acres or 5% of grizzly bear denning habitat in a non-motorized classification in this landscape. This alternative, along with Alternative 4 closes the least number of acres of modeled grizzly bear denning habitat to OSVs. This landscape is not in a recovery zone or known distribution area, but there was one unconfirmed sighting of an adult grizzly bear in 1999. There is modeled grizzly bear denning habitat scattered throughout the landscape, approximately half of which is used regularly by OSVs and one quarter that is used intermittently. If there is a denning grizzly bear in the area, the chance for disturbance/displacement to them when emerging from their dens is highest for males starting in late February and for females with cubs the third week in March. This possibility of conflict is highest on the western half of the Pioneer Landscape. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 2 proposes to decrease the amount of this landscape available for winter motorized travel to 455,341 acres or 79% and increase the non-motorized winter designations to 118,784 acres or 21% of the Pioneer landscape. Alternative 2 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 79% (117,869 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 21% (30,810 acres). Approximately 22,700 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. Although this provides more closures in grizzly bear denning habitat, it is mostly in areas what are not currently used by OSVs or are used intermittently. While this would improve conditions for denning grizzly bears, the effects are still similar to Alternative 1. Although there is still a chance of disturbance/displacement on the northeastern quarter of the landscape, the possibility of conflict is highest on the western half of the Pioneer Landscape. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 3 proposes to decrease the amount of this landscape available for winter motorized travel to 392,952 acres or 68% and increase the non-motorized winter designations to 181,173 acres or 32% of the Pioneer landscape. Alternative 3 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 66% (97,757 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 34%

(50,922 acres). Approximately 42,800 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. This alternative would close the most number of acres of modeled grizzly bear denning habitat to OSV travel. This alternative differs from the others in that it does close some of the regularly used OSV areas to that use. However, while this would improve conditions there is still a large amount of grizzly bear denning habitat open to winter motorized use. The effects are still similar to Alternatives 1 and 2. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 4 retains the existing management at 93% of this landscape available for winter motorized travel and 7% of the Pioneer landscape in a non-motorized winter setting. Alternative 4 also proposes to retain the existing areas open to winter motorized travel in grizzly bear denning habitat at 95% (140,582 acres). This conversely retains acres of grizzly bear denning habitat in a non-motorized classification at 5% (8,097 acres). The effects of this Alternative are exactly like Alternative 1. This alternative, along with Alternative 4, closes the least amount of acres of modeled grizzly bear denning habitat to OSVs. This possibility of conflict is highest on the western half of the Pioneer Landscape. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 5 proposes to decrease the amount of this landscape available for winter motorized travel to 424,093 acres or 74% and increase the non-motorized winter designations to 150,032 acres or 26% of the Pioneer landscape. Alternative 5 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 71% (105,869 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 29% (42,809 acres). Approximately 34,700 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. Although this Alternative has more modeled grizzly bear denning habitat closed than Alternative 2, the effects would be very similar. Even though there is still a chance of disturbance/displacement on the northeastern quarter of the landscape, the possibility of conflict is highest on the western half of the Pioneer Landscape. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 6 Modified proposes to decrease the amount of this landscape available for winter motorized travel to 424,492 acres or 74% and increase the non-motorized winter designations to 149,633 acres or 26% of the Pioneer landscape. Alternative 6 Modified proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 71% (105,882 acres).

Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 29% (42,796 acres). The effects of this Alternative are identical to Alternative 5, see above.

Tobacco Root Landscape

Alternative 1 is the existing management in which approximately 164,641 acres or 95% of this landscape is available for winter motorized travel and 9,334 acres or 5% of the Tobacco Root landscape in a non-motorized winter setting. Alternative 1 also proposes to keep approximately 48,685 acres or 97% of grizzly bear denning habitat open to winter motorized travel in the Tobacco Root landscape. This leaves approximately 1,616 acres or 3% of grizzly bear denning habitat in a non-motorized classification in this landscape. Although 95% of this landscape remains open to winter motorized travel, only two% is used regularly and 20% is used intermittently by OSVs. The use that exists is mostly intermittent cross country travel which has a higher chance of disturbing/displacing an emerging grizzly bear. There are two regularly used routes, but as grizzly bears are known to avoid routes. Although there are a few small cross county areas in the north half of the Landscape, OSV use is primarily in the south half. This Landscape is not within a recovery zone or a grizzly bear distribution are however there have been seven unconfirmed sightings scattered through the center of the Landscape, with dates ranging from January 1985 to August 1997. Although the use is intermittent, there have been grizzly sightings in the past so there is a chance that if a grizzly bear denned in the area OSV use, it could be disturbed/displaced. The chance for disturbance/displacement to them when emerging from their dens is highest for males starting in late February and for females with cubs the third week in March. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, "… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 2 retains the existing management at 164,647 acres or 95% of this landscape available for winter motorized travel and 9,328 acres or 5% of the Tobacco Root landscape in a non-motorized winter setting. Alternative 2 also proposes to retain the existing areas open to winter motorized travel in grizzly bear denning habitat at 97% (48,685 acres). This conversely retains acres of grizzly bear denning habitat in a non-motorized classification at 3% (1,616 acres). The effects from this Alternative are identical to Alternative 1 and 4. The highest risk for conflicts would be on the south half of the Landscape from late February through the end of winter use. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 3 proposes to decrease the amount of this landscape available for winter motorized travel to 56,872 acres or 33% and increase the non-motorized winter designations to 117,104 acres or 67% of the Tobacco Root landscape. Alternative 3 proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 29% (14,693 acres). Conversely, this

increases the acres of grizzly bear denning habitat in a non-motorized classification to 71% (35,609 acres). Approximately 34,000 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. This alternative would close the most number of acres of modeled grizzly bear denning habitat to OSV travel. This alternative closes all of the northern part of this Landscape including intermittent cross county areas and regularly used OSV route to that use. However, while this would improve conditions there is still a large amount of grizzly bear denning habitat open to intermittent winter motorized use. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 4 retains the existing management at 531,932 acres or 95% of this landscape available for winter motorized travel and 9,328 acres or 5% of the Tobacco Root landscape in a non-motorized winter setting. Alternative 4 also proposes to retain the existing areas open to winter motorized travel in grizzly bear denning habitat at 97% (48,685 acres). This conversely retains acres of grizzly bear denning habitat in a non-motorized classification at 3% (1,616 acres). The effects from this Alternative are identical to Alternative 1 and 2. The highest risk for conflicts would be on the south half of the Landscape from late February through the end of winter use. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 5 proposes to decrease the amount of this landscape available for winter motorized travel to 74,381 acres or 43% and increase the non-motorized winter designations to 99,595 acres or 57% of the Tobacco Root landscape. Alternative 5 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 42% (21,350 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 58% (28,951 acres). Approximately 27,300 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. As with Alternative 3, this Alternative mostly closes OSV use in the northern part of this Landscape including one intermittent cross county area. It is different in that it retains the regularly used OSV route in that area. However, while this would improve conditions there is still a large amount of grizzly bear denning habitat open to intermittent winter motorized use as well as some regularly used routes. Even though this Alternative greatly improves conditions for modeled grizzly bear denning habitat, there could possibly be some disturbance/displacement effects to grizzly bears. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 6 Modified proposes to decrease the amount of this landscape available for winter

motorized travel to 83,851 acres or 48% and increase the non-motorized winter designations to 90,125 acres or 52% of the Tobacco Root landscape. Alternative 6 Modified also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 49% (24,688 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 51% (25,614 acres). Approximately 24,000 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. As with Alternative 5, this Alternative mostly closes OSV use in the northern part of this Landscape including one intermittent cross county area. It is different in that it retains the regularly used OSV route in that area. However, while this would improve conditions there is still a large amount of grizzly bear denning habitat open to intermittent winter motorized use as well as some regularly used routes. Even though this Alternative greatly improves conditions for modeled grizzly bear denning habitat, there could possibly be some disturbance/displacement effects to grizzly bears. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, "… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Upper Clark Fork Landscape

Alternative 1 is the existing management in which approximately 74,277 acres or 89% of this landscape is available for winter motorized travel and 9,041 acres or 11% of the Upper Clark Fork landscape in a non-motorized winter setting with. Alternative 1 also proposes to keep approximately 8,206 acres or 89% of grizzly bear denning habitat open to winter motorized travel in the Upper Clark Fork landscape. This leaves approximately 1,062 acres or 11% of grizzly bear denning habitat in a non-motorized classification in this landscape. This Landscape is only used regularly by OSVs on 2% and 1% intermittently of the entire areas. There are no cross country areas, the OSV users stay on routes. There has only been one confirmed grizzly bear sighting in this Landscape. As use is mainly restricted to routes on only 3% of the Landscape, it is extremely unlikely that a grizzly bear would be affected by OSV use. However, if there was a conflict, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 2 proposes to decrease the amount of this landscape available for winter motorized travel to 72,033 acres or 86% and increase the non-motorized winter designations to 11,285 acres or 14% of the Upper Clark Fork landscape. Alternative 2 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 87% (8,035 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 13% (1,233 acres). This alternative closes only an additional 170 acres of grizzly bear modeled denning habitat to OSV travel. Effects from this Alternative would be identical to Alternative 1. Extremely unlikely that a grizzly bear would be affected by OSV use in this Landscape. However, if there was a conflict, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude

that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 3 proposes to decrease the amount of this landscape available for winter motorized travel to 59,616 acres or 72% and increase the non-motorized winter designations to 23,701 acres or 28% of the Upper Clark Fork Landscape. Alternative 3 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 72% (6,692 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 28% (2,577 acres). Approximately 1,500 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. The additional closures in this Alternative are not in areas utilized by OSVs. The effects of this Alternative are similar to Alternatives 1 and 2. In this Alternative however there may be increased closures in good snow years when OSV use may extend out from the typical areas. However it is still extremely unlikely that a grizzly bear would be affected by OSV use in this Landscape. However, if there was a conflict, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 4 retains the existing management at 74,328 acres or 89% of this landscape available for winter motorized travel and 8,989 acres or 11% of the Upper Clark Fork landscape in a non-motorized winter setting. Although the percentage of winter motorized travel didn't change for the Upper Clark Fork Landscape, Alternative 4 also proposes to increase slightly areas open to winter motorized travel in grizzly bear denning habitat to 8,218 acres but it is still 89% of the habitat. Conversely, this decreases the acres of grizzly bear denning habitat in a non-motorized classification to 1,050 acres but still 11%. Effects from this Alternative would be identical to Alternative 1 and 2. Extremely unlikely that a grizzly bear would be affected by OSV use in this Landscape. However, if there was a conflict, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 5 proposes to decrease the amount of this landscape available for winter motorized travel to 54,735 acres or 66% and increase the non-motorized winter designations to 28,582 acres or 34% of the Upper Clark Fork landscape. Alternative 5 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 63% (5,882 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 37% (3,387 acres). Approximately 2,300 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. This alternative would close the most number of acres of modeled grizzly bear denning habitat to OSV travel. However, the additional closures in this Alternative are not in areas utilized by OSVs. The effects of this Alternative are similar to Alternatives 1, 2, 3 and 4. In this Alternative however there may be increased closures in good snow years when OSV use may extend out

from the typical areas. However it is still extremely unlikely that a grizzly bear would be affected by OSV use in this Landscape. However, if there was a conflict, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 6 Modified proposes to decrease the amount of this landscape available for winter motorized travel to 55,542 acres or 67% and increase the non-motorized winter designations to 27,776 acres or 33% of the Upper Clark Fork landscape. Alternative 6 Modified also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 64% (5,900 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 36% (3,369 acres). Approximately 2,300 additional acres of modeled grizzly bear denning habitat would be closed to winter motorized use under this Alternative. This alternative would close the most number of acres of modeled grizzly bear denning habitat to OSV travel. The effects of this Alternative are similar to Alternatives 1, 2, 3, 4 and 5. It is still extremely unlikely that a grizzly bear would be affected by OSV use in this Landscape. However, if there was a conflict, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Upper Rock Creek Landscape

Alternative 1 is the existing management in which approximately 207,880 acres or 76% of this landscape is available for winter motorized travel and 65,339 acres or 24% of the Upper Rock Creek landscape in a non-motorized winter setting. Alternative 1 also proposes to keep approximately 10,045 acres or 85% of grizzly bear denning habitat open to winter motorized travel in the Upper Rock Creek landscape. This leaves approximately 1,796 acres or 15% of grizzly bear denning habitat in a non-motorized classification in this landscape. Although not in a recovery zone, this area is within the NCDE grizzly distribution area. There have been several sightings in this Landscape. According to the use map, approximately 7% of the Landscape is regularly used for winter motorized travel and approximately 9% is used intermittently, 60% is used seldom to none and 24% is closed. The use is scattered across the Landscape but there is not much cross county OSV use, users mainly stay on routes. The one area that does receive cross country travel is the Sapphire Mountains however there is very little modeled grizzly bear denning habitat in this area. Although not much, there is modeled grizzly bear denning habitat along some of the regular and intermittently used OSV routes. As grizzly bears avoid motorized routes, it is assumed potential conflicts would be minimal. If there is a denning grizzly in the area, the chance for disturbance/displacement to them when emerging from their dens is highest for males starting in late February and for females with cubs the third week in March. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally

grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 2 retains the existing management at 208,056 acres or 76% of this landscape available for winter motorized travel and 65,162 acres or 24% of the Upper Rock Creek landscape in a non-motorized winter setting. Alternative 2 also proposes to retain the existing areas open to winter motorized travel in grizzly bear denning habitat at 85% (10,045 acres). This conversely retains acres of grizzly bear denning habitat in a non-motorized classification at 15% (1,796 acres). The effects from this Alternative are identical to Alternative 1. There could be disturbance/displacement effects to emerging grizzly bears. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 3 proposes to decrease the amount of this landscape available for winter motorized travel to 191,825 acres or 70% and increase the non-motorized winter designations to 81,393 acres or 30% of the Upper Rock Creek landscape. Alternative 3 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 80% (9,458 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 20% (2,383 acres). This alternative closes an additional 560 acres of grizzly bear modeled denning habitat to OSV travel. These closures include a regularly used play area and an intermittently used route. The effects however are similar to Alternatives 1 and 2. There could be disturbance/displacement effects to emerging grizzly bears. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 4 retains the existing management at 208,056 acres or 76% of this landscape available for winter motorized travel and 65,162 acres or 24% of the Upper Rock Creek landscape in a non-motorized winter setting. Alternative 4 also proposes to retain the existing areas open to winter motorized travel in grizzly bear denning habitat at 85% (10,045 acres). This conversely retains acres of grizzly bear denning habitat in a non-motorized classification at 15% (1,796 acres). The effects from this Alternative are identical to Alternatives 1 and 2. There could be disturbance/displacement effects to emerging grizzly bears. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 5 proposes to decrease the amount of this landscape available for winter motorized travel to 189,381 acres or 69% and increase the non-motorized winter designations to 83,837

acres or 31% of the Upper Rock Creek landscape. Alternative 5 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 77% (9,140 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 23% (2,701 acres). This alternative closes an additional 900 acres of grizzly bear modeled denning habitat to OSV travel. The effects from this Alternative are similar to Alternative 3. Although there are additional closures, there could still be disturbance/displacement effects to emerging grizzly bears. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Alternative 6 Modified proposes to decrease the amount of this landscape available for winter motorized travel to 133,571 acres or 49% and increase the non-motorized winter designations to 139,647 acres or 51% of the Upper Rock Creek landscape. Alternative 6 also proposes to decrease areas open to winter motorized travel in grizzly bear denning habitat to 55% (6,519 acres). Conversely, this increases the acres of grizzly bear denning habitat in a non-motorized classification to 45% (5,322 acres). This alternative closes an additional 3,500 acres of grizzly bear modeled denning habitat to OSV travel. This alternative closes the most number of acres in modeled grizzly bear denning habitat to OSV travel. Although closures increased considerably, it was mostly in areas of seldom to no use. These closures would be most effective during high snow years when motorized use may expand from what has been commonly utilized. Due to the regularly used and the intermediately used OSV areas, the effects from this Alternative are similar to Alternative 3. Although there are additional closures, there could still be disturbance/displacement effects to emerging grizzly bears. Although there could possibly be some effects to grizzly bears at this time, the USFWS in the 2013 BO stated, ""… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears." (USFWS, 2013b). Additionally grizzly bear populations have increased and expanded their range outside of the GYA and NCDE with existing management, including OSV travel.

Summary Statement

Overall, Alternative 3, followed by Alternative 6 Modified, would reduce potential effects from OSV travel to modeled grizzly bear denning habitat. As stated earlier, the only Landscape that is within a grizzly bear recovery zone (GYE) is the Madison. The portion of that Landscape within the GYE boundary is also within the Lee Metcalf Wilderness which does not allow winter motorized use and therefore no effects from OSV travel are anticipated. The local MFWP biologist verified that there is no OSV travel in this wilderness. Most of the Landscapes on the Forest are either within an official grizzly bear distribution area or have had an unconfirmed grizzly bear sighting. The Jefferson River Landscape is the only exception. The Gravelly Landscape is the only area outside of the recovery zone on the BDNF that bears live year-round where potential effects from OSV travel would be most likely.

As stated in the effects section above, USFWS identified impacts to emergent bears, mainly

females and cubs, as a higher concern than impacts to denning bears. The potential interaction between OSV use and females and cubs in the BDNF is between third week of March and May 15. According to USFWS, such interaction would be limited due to low number of denning bears and the abundant amount of denning habitat. In the conclusion the USFWS states, "… the Service does not expect impacts to spring habitat and foraging grizzly bears to rise to the magnitude that would injure grizzly bears" (USFWS, 2013b). The 2013 USFWS Biological Opinion (2013 BO) also states that, "While the Revised Forest Plan direction may have adverse effects on some of the individual grizzly bears using the action area now and into the future, considering the large size of the YGBE and NCDE recovery zones, favorable land management within the recovery zones, and the robust status of these grizzly bear populations, adverse effects on grizzly bears as a result of implementing the Revised Forest Plan would not have negative effects on the status of either the YGBE or NCDE grizzly bear populations." (USFWS 2013b).

Although there could possibly be some effects to grizzly bears emerging from their dens in the spring from winter motorized travel, it is important to understand the role of the BDNF outside the grizzly bear recovery zones. In 1993, the Grizzly Bear Recovery Plan outlined a strategy to recover grizzly bears built on the concept of recovery zones. The Recovery Plan acknowledged that "Grizzly bears outside the recovery zones probably experience a higher level of adverse impacts due to land management actions than do grizzly bears inside." It also says that "…such areas would not be managed primarily to provide or conserve grizzly bear habitat. Thus, we expect grizzly bears will occur at lower densities outside the recovery zones than within the recovery zones as a result of suboptimal habitat conditions including higher road densities, fewer areas secure from motorized access, and more human presence and activity." The recovery plan anticipated that grizzly bears can and will exist outside recovery zone lines in many areas, but that the grizzly bears residing within the recovery zone were crucial to recovery goals ..." (USDI Fish and Wildlife Service, 1993). It is also important to note that the Northern Continental Divide Ecosystem and Greater Yellowstone Ecosystem grizzly bear population have expanded outside of both primary conservation areas despite human presence and activity, (U.S. Fish and Wildlife Service, 2011) including existing winter motorized travel.

Effects for Canada Lynx

The Beaverhead-Deerlodge NF is considered unoccupied, secondary habitat for the Canada lynx. The conservation strategy indicates that the focus of management in secondary areas is on "providing a mosaic of forest structure to support snowshoe hare prey resources for individual lynx that infrequently may move through or reside temporarily in the area" and that landscape connectivity should be maintained to allow for movement and dispersal (Interagency Lynx Biology Team, 2013). There is no critical habitat identified for the Beaverhead-Deerlodge National Forest however there are many linkage areas identified. According to Appendix B of the Final Environmental Impact Statement Northern Rockies Lynx Management Direction, linkage areas are described as, "Areas that provide landscape connectivity between blocks of lynx habitat. Linkage areas occur both within and between geographic areas where blocks of lynx habitat are separated by intervening areas of non-lynx habitat such as basins, valleys, agricultural lands, or where lynx habitat naturally narrows between two blocks." (USFS 2007a).

Please see Appendix E for the NRLMD map of lynx habitat in the Northern Rockies.

There have been no verified lynx sightings on the Forest since the mid-late 1990s, with the exception of six lynx transplanted in Colorado. Between 2004 and 2007, six of the relocated individuals were found traveling through the BDNF, however none of them stayed on the Forest (Devineau et al. in 2010). Many surveys attempting to verify lynx presence on the BDNF have been completed: Squires et al. in 2003, Berg in 2009, and Wildthings (Porco) in 2009. From 2012 through 2014, the Forest Service conducted lynx surveys following the National Lynx Detection Protocol (McKelvey et al, 1999) in some of the most likely lynx habitat on the forest. To date no lynx have been verified (Fletcher, 2013, Pilgrim and Schwartz, 2014, 2015).

The Lynx Conservation Assessment and Strategy (LCAS) indicates there have been few studies dealing with lynx reactions to human presence. It states, "Some anecdotal information suggests that lynx are quite tolerant of humans, although given differences in individuals and contexts, a variety of behavioral responses to human presence may be expected... Preliminary information from winter recreation studies in Colorado indicates that some recreation uses are compatible, but lynx may avoid some developed ski areas" (Interagency Lynx Biology Team, 2013). This SEIS only concerns dispersed recreation, not developed ski areas.

There has been some concern about winter recreational activities compacting snow. Bunnell et al. 2006 stated, "We documented and quantified the putative invasions of coyotes into lynx winter habitat but did not directly measure competition between the 2 species. Although circumstantial evidence suggests the existence of competition, in the Intermountain West the topic merits further investigation. This will require simultaneous evaluation of sympatric coyote and lynx populations to identify and quantify the actual extent of exploitation and interference competition." (Bunnell et al. 2006). Murray et. al. stated, "Snowmobile and other anthropogenic trails have disputable effect in promoting lynx competition with other carnivores, and their impacts should be more fully understood to test the validity of anticipated restrictions on recreational activities in lynx habitat." (Murray et. al 2008). Kolbe et al. (2007) found that although coyotes did use snowmobile trails, they did not travel closer to these trails than randomly expected. Other studies also found that coyotes did not use compacted roads any more than uncompacted roads, suggesting that coyotes may have used roads because they provide a "cleared travel corridor" whether they are compacted or not (Interagency Lynx Biology Team, 2013).

Studies in Montana and Wyoming showed, "there was not a significant dietary overlap during winter between these species. In Wyoming, the potential for competition between lynx and coyotes would be most likely to occur during the fall when coyotes appear to increase predation on snowshoe hares" (Interagency Lynx Biology Team, 2013). Due to the timing of winter recreation it does not affect fall carnivore foraging behavior.

The management direction analyzed in the Lynx FEIS and incorporated into the forest plans focus on these types of activities that could affect lynx productivity (USDA Forest Service, 2007b). The Northern Rockies Lynx Management Direction (NRLMD) specifically considered the results of the most recent research and concluded there was "little evidence that compacted snowmobile trails increased exploitation competition between coyotes and lynx during winter on our study area" (USDA Forest Service, 2007b). Since there was little evidence of winter

recreation impacts to lynx there are no standards applicable to recreation for lynx in the NRLMD.

Research has found there is little evidence that winter recreation and the resulting snow compaction negatively impact lynx. Instead, research has found that habitat modification is the key risk factor for lynx (NRLMD, FEIS). Over snow recreation as proposed in these alternatives does not modify habitat as described in the NRLMD. The NRLMD standards that deal with habitat modification are applicable only to vegetation management.

The NRLMD has one standard that applies to all management activities (Standard ALL S1) and two guidelines applicable to winter recreation. They are listed below along with information showing how the alternatives meet the standard and the guidelines.

Standard ALL S1 –Permanent developments and vegetation management -- New or expanded permanent developments and vegetation management projects must maintain habitat connectivity in an LAU and/or linkage area.

This standard applies to new or expanded permanent developments and to vegetation treatments. This SEIS does not propose any permanent developments or any vegetation management; it only addresses winter, over snow, recreation. According to the NRLMD, habitat connectivity for lynx is defined as such, "Habitat connectivity consists of an adequate amount of vegetation cover arranged in a way that allows lynx to move around. Narrow forested mountain ridges or shrub-steppe plateaus may serve as a link between more extensive areas of lynx habitat; wooded riparian areas may provide travel cover across open valley floors." (LCAS 2000.) As there is no vegetation modification proposed, the SEIS maintains all existing habitat connectivity in all LAUs and linkage area across all landscapes on the BDNF.

Guideline HU G3 – Recreation Developments – Recreation developments and operations should be planned in ways that both provide for lynx movement and maintain the effectiveness of lynx habitat.

This guideline would be met under all alternatives. The 2009 existing condition for OSV routes and open areas were included as part of the baseline analysis for the LCAS (McKelvey et al. 1999) and the subsequent NRLMD. Forest Plan 2009 FEIS Alternatives 2, 3, 5 and 6 Modified close additional areas to winter motorized travel. None of the alternatives increase or change recreation developments or operations, therefore Alternatives 2, 3, 5 and 6 Modified are in compliance with the NRLMD, and result in fewer potential impacts to lynx. Alternative 1 maintains the status quo, while Alternative 4 does increase some potential impacts to lynx.

Guideline HU G11 – Snow Compaction – Designated over-the-snow routes, or designated play areas, should not expand outside baseline areas of consistent snow compaction, unless designation serves to consolidate use and improve lynx habitat. This is calculated on an LAU basis, or on a combination of immediately adjacent LAUs. This does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings, or to access regulated by Guideline HU G12. Use the same analysis boundaries for all actions subject to this guideline.

This guideline would be met under all alternatives. The 2009 existing condition for OSV routes

and open areas was included as part of the baseline analysis for the LCAS (McKelvey et al. 1999) and the subsequent NRLMD. None of the alternatives change existing designated routes or designated play areas and all alternatives result in low potential impacts to lynx.

The NRLMD has one standard and two guidelines dealing with **linkage areas.**

- **Standard LINK S1** – Highway or forest highway construction in linkage areas
- **Guideline LINK G1** – Land exchanges
- **Guideline LINK G2** – Livestock grazing in shrub-steppe habitats

None of these are applicable to this project, therefore there would be no effects to linkage areas from the proposed alternatives. OSV travel was not identified as an issue for linkage areas in the NRLMD.

Summary Statement

Since the BDNF is an unoccupied forest and despite surveys, there have been no recent sightings of lynx on the BDNF, the probability of lynx being affected on the Forest by winter motorized travel project is low. It is important to remember the role of secondary/peripheral habitat, which is the only type of lynx habitat found on the Forest. According to the revised LCAS, "The intent is to place more emphasis on protection of the core areas, which support persistent lynx populations and have evidence of recent reproduction, and less stringent protection and greater flexibility in secondary/peripheral areas, which only support lynx intermittently. Lynx habitat in secondary/peripheral areas appears to be inherently patchier and less productive than in core areas.

The LCAS also acknowledged that the contribution of secondary/peripheral areas in support of lynx "occurring outside of core areas to population dynamics and persistence within core areas is unclear. It has been suggested that secondary and peripheral areas might contribute to lynx persistence by supporting successful dispersal or exploratory movements." Finally, "The focus of management is on providing a mosaic of forest structure to support snowshoe hare prey resources for individual lynx that infrequently may move through or reside temporarily in the area. Landscape connectivity should be maintained to allow for lynx movement and dispersal "(Interagency Lynx Biology Team, 2013).

Implementation of winter motorized travel under all of the alternatives would still provide snowshoe hare and dispersal habitats for transient Canada lynx and would continue to allow for lynx movement and dispersal throughout and across the Forest. Alternatives 2, 3, 5 and 6 Modified result in fewer potential impacts to lynx. There are differences between alternatives (by changing the amount of areas open to this use – see Table 1 through Table 11) in terms of the potential risk of OSVs to lynx. However, the on-the-ground, actual effects have been negligible, regardless of the extent of open areas. We are unable to identify any discernible effects to lynx on any of the landscapes. The impact of the OSV travel management action for areas and trails on lynx in terms of the Endangered Species Act has been analyzed and conclude that the action is not likely to adversely affect lynx.

Effects for Gray Wolf

As noted in the assumptions section, according to the MFWP statutes it is illegal in the state of Montana to harass wildlife from snowmobiles. Locally MFWP game wardens were queried to assess how much illegal harassment is going on. They reported back that there have been no tickets written nor do they have any cases open for wildlife harassment by snowmobile. Statewide, there have been five tickets written for wildlife harassment from a snowmobile between 1980 and 2015. It is possible that harassment may be happening locally as well, but if it is, it is on such a small scale that although it might affect a few individuals, it is not affecting the wolf population (Pers. com. MFWP 2016).

According to the 2008 Biological Opinion for effects to wolves from the BDNF Revised Forest Plan, there are three main activities that could potentially affect wolves: timber harvest, road use, and livestock grazing. Winter motorized recreation was not identified as a major issue for wolves nor were there any management recommendations proposed (USFWS, 2008).

Wolves are habitat generalists that thrive in areas with low human disturbance and abundant prey. There is no apparent significant influence from snowmobile activity as use has been occurring on the BDNF as long as the wolves have been here and their population has been increasing (SEIS). There could be temporary disturbance effects to individuals from winter motorized travel, but there is no research that shows permanent harm from these types of activities (Pers. com MFWP 2016).

As the indicator for wolves is acres open and closed in big game winter range, refer to the general big game section starting on page 39 for effects to general big game by alternative and by landscape. As winter wolf prey is known to be big game, more specifically elk, it is assumed that alternatives that close general big game winter ranges would also be good for wolves. The BA completed in 2008 for the Forest Plan identified acres of the Forest open and closed to winter motorized access as an indicator for the wolf, but also mentioned that closures would be of greatest benefit to wolves on big game winter range. For additional information on effects to wolves based on areas open and closed to winter motorized travel forestwide please refer to the 2008 BA.

Summary Statement

The majority of wolf mortality overall in Montana is related to humans: livestock conflict removals regulated public harvest, car strikes, train strikes, illegal killings and incidental to other activities (e.g. trapping/snaring) (Bradley et. al. 2015).

Wolf populations are known to rapidly recover from severe disruptions, such as very high levels of human-caused mortality or disease and after severe declines and can more than double in just two years (Mech and Boitani, 2003). In reference to Alternative 6 Modified, the USFWS states in the conclusion, “After reviewing the current status of the gray wolf, the environmental baseline for the action area, the effects of the action and the cumulative effects, it is the Service’s biological opinion that the effects of the proposed revised Forest Plan on gray wolves are not likely to jeopardize the continued existence of this species” (USFWS, 2008).

Effects for Wolverine

Wolverine General Habitat

Wolverine habitat can be characterized by deep, persistent and reliable spring snow cover (April 15 to May 14) and is the best overall predictor of wolverine occurrence, combined with elevation, in the contiguous US (Copeland et al. 2010). The high elevations provide the conditions necessary for the presence and maintenance of late winter reproductive dens (Aubry et al. 2007, Copeland et al. 2010). Elevation was the key variable for distinguishing wolverine presence. It was the strongest and most consistent variable across all logistic regression models. Wolverines preferred higher elevations in almost all models in which it was present. Use of high elevation was most notable during summer when all elevations >2,400 m were used more than expected and elevations <2,200 m used less than expected. During winter, use shifted to the 2,400–2,600 m elevation zone with only the lowest elevations used less than expectation (Copeland et al. 2007).

Wolverine Denning Habitat

In Montana, natal dens occur above 7,874 feet and are located on north aspects in avalanche debris, typically in alpine habitats near timberline. Dens are typically used through late April or early May and after using these dens, wolverines move to rendezvous sites, typically after weaning, and use these areas through early July. These sites are characterized by natural cavities formed by large boulders, downed logs (avalanche debris) and snow (USFWS, 2010). Copeland et al (2010) overlaid known den sites on the spring snow coverage and 97.9% of the den sites occurred in pixels that were snow-covered in at least one of seven years and 69% of the dens were located in areas with persistent spring snow six to seven years out of seven years (Copeland et al. 2010). McKelvey stated at a Forest Service R1 Regional Biologists Meeting in December 2010 that wolverines are twenty times more likely to stay in the area of persistent spring snow during dispersal.

The BDNF modeled wolverine denning habitat model was developed for the forest based on Heinemeyer et al. 2001. This model incorporated slope, elevation, rock, ice and alpine cover types, and patch size preferred by wolverine. This was used in the effects analysis. See the Wildlife Report in the project file for additional information on wolverines.

Table 29 displays the percentages of modeled wolverine denning habitat (Heinemeyer et al. 2001) on NFS lands open to winter motorized travel by landscape and alternative. See Figure F-1 for a map of persistent spring snow (Copeland et al. 2010) and wolverine denning habitat based on Heinemeyer et al. 2001. Also see Figure F- 2 through Figure F- 7 for maps displaying wolverine denning habitat per Heinemeyer et al. 2001, open and closed, by Landscape and by Alternative.

Table 29: Percent of Wolverine Modeled Denning Habitat (Heinemeyer et al. 2001) on NFS lands Open to Winter Motorized Travel

Landscape	Wolverine Denning	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6 Modified
Big Hole	32,008 ac.	62%	25%	9%	62%	33%	37%
Boulder River	475 ac.	100%	100%	51%	100%	46%	50%
Clark Fork Flint	14,364 ac.	90%	76%	37%	90%	63%	58%
Gravelly	15,482 ac	75%	60%	5%	75%	21%	27%
Jefferson River	3,757 ac.	100%	8%	2%	100%	6%	1%
Lima Tendoy	25,798 ac.	62%	62%	31%	62%	46%	35%
Madison	28,677 ac.	4%	2%	0.8%	4%	0.8%	2%
Pioneer	30,407 ac.	98%	48%	39%	98%	40%	40%
Tobacco Root	20,771 ac.	84%	84%	23%	84%	34%	37%
Upper Clark Fork	111 ac.	100%	100%	100%	100%	92%	92%
Upper Rock Creek	9,126 ac.	21%	21%	17%	21%	21%	12%
Totals	180,975 ac.	64%	44%	20%	64%	31%	31%

The 2012 SEIS stated that while human disturbance may in general affect wolverine distribution, the highest potential for negative disturbance impacts is theorized to be disturbance at den sites. This species lives at low densities under the best of circumstances; hence disturbance during this critical period may potentially have adverse effects on survival of young wolverines (Inman, 2007, Heinemeyer et. al. 2010). Wolverine winter denning habitat in high mountain basins is becoming increasingly accessible to snowmobiles as technological improvements enable riders to reach areas previously considered inaccessible (SEIS 2012).

The USFWS Proposed Rule acknowledged that while dispersed recreation may affect wolverines, significant effects to wolverines from winter recreation remain to be demonstrated scientifically. It also mentions that preliminary results from an ongoing study by Heinenmeyer et al. on the potential impacts of winter recreation on wolverines in central Idaho indicate that wolverines are present and reproducing in this area in spite of heavy recreational use, including a developed ski area; dispersed winter and summer recreation; and dispersed snowmobile use

(USDI Fish and Wildlife Service, 2013d). The Heinemeyer et al. study referred to is a wolverine winter recreation research project, which started in 2009. Although their Centennial study area is primarily south of the Montana/Idaho border, it does include a small portion of the BDNF (Heinemeyer et. al. 2015). Squires stated that even though wolverines are present and reproducing in Idaho in spite of heavy recreational use, some level of effect to individuals may occur. However it is important to remember that this research is still ongoing and the data analysis has not been completed (Pers. com. Squires 2016).

During the public comment period connectivity and corridors were raised as issues for wolverines and OSV travel. In reviewing the literature on wolverines and corridors/connectivity, the Beaverhead-Deerlodge was identified in the most recent paper as the "Central Linkage Region". It also stated that this area is a logical priority for "securing connectivity because of the nature of its habitat and land ownership…" (Inman 2013). The discussion about securing connectivity describes, "…developing incentives for retaining private lands in a state that facilitates animal movement is important and would likely benefit numerous terrestrial species." (Inman 2013). Additional recommendations for the CLR however were to, "…address winter recreation management (Krebs et al., 2007) such that reproductive rates are not encumbered…" (Inman et al. 2013). Krebs et al. 2007 found when studying winter recreation activities, including OSV use, that there were negative associations with helicopter skiing at the landscape scale, backcountry skiing at the meso scale for the Columbia Mountain study area females. However it was also stated that additional research would be necessary to thoroughly assess impacts of this use to wolverines (Krebs et al. 2007). This brings us back to the proposed rule that stated that dispersed recreation may affect wolverines, but significant effects to wolverines from winter recreation remain to be demonstrated scientifically (USFWS 2013d). Based on the information above, it is unlikely that OSV travel as proposed in this document, would affect connectivity for wolverines at the landscape scale.

During the public comment period climate change was also raised as an issue for wolverines and OSV travel. In the proposed rule, the USFWS (2013d) identified that the best scientific evidence shows that wolverine use deep persistent snow for denning and that climate change can lead to loss of spring snowpack. The most recent literature on wolverines and climate change states, based on climate change modeling and associated assumptions, that, "Overall, we expect wolverine habitat to persist throughout the species range at least for the first half of the 21st century, but populations will likely become smaller and more isolated." (McKelvey et al. 2011). So although a loss of habitat may be possible, the USFWS still found that the best scientific information available does not substantiate recreational activities as a threat to wolverines (USFWS 2013d).

As noted earlier in the document, according to the MFWP statutes it is illegal in the state of Montana to harass wildlife from snowmobiles. Locally MFWP game wardens were queried to assess how much illegal harassment is going on. They reported back that there have been no tickets written nor do they have any cases open for wildlife harassment by snowmobile. Statewide, there have been five tickets written for wildlife harassment from a snowmobile between 1980 and 2015. It is possible that harassment may be happening locally as well, but if it is, it is on such a small scale that although it might affect a few individuals, it is not affecting the wolverine population.

Forestwide

Alternative 1 is the existing management in which 115,168 acres or 64% of wolverine denning habitat is available for winter motorized travel and 65,795 acres or 36% of the Forest in a non-motorized winter setting. This is the highest amount of wolverine modeled denning habitat left open with the most potential for conflict between motorized recreation and wolverines. Overall, this Alternative, along with Alternative 4 close the least amount of wolverine modeled denning habitat. There are several areas with wolverine denning habitat that receive regular OSV travel, such as the Big Hole, West Pioneers, the Gravelly, and the Clark Fork Flint landscapes where there could be disturbance/displacement effects to wolverines. Although there could be small localized effects, the proposed winter motorized travel on the BDNF would not be a threat to the wolverine population.

Forestwide, Alternative 2 proposes to decrease acres of wolverine denning habitat open to winter motorized travel to approximately 79,521 acres or 44% of the habitat. Conversely this increases the acres of wolverine denning habitat in a non-motorized classification across the forest to approximately 101,455 acres or 56% of the habitat. Overall, this Alternative does not close many more acres of wolverine modeled denning habitat than Alternatives 1 and 4. Even though there are additional closures in the Big Hole, Clark Fork Flint, Gravelly, and the Pioneer landscapes, there are still several areas with wolverine denning habitat that receive regular OSV travel. Therefore there could be disturbance/displacement effects to wolverines across the Forest. Although there could be small localized effects, the proposed winter motorized travel on the BDNF would not be a threat to the wolverine population.

Forestwide, Alternative 3 proposes to decrease acres of wolverine denning habitat open to winter motorized travel to approximately 35,666 acres or 20% of the habitat. Conversely this increases the acres of wolverine denning habitat in a non-motorized classification across the forest to approximately 145,310 acres or 80% of the habitat. Overall, this Alternative closes the most acres of wolverine modeled denning habitat than the other alternatives. Almost all of the wolverine denning habitat with regular and intermittent winter motorized travel would be closed. Denning habitat in the West Pioneers would still remain open to regular OSV use. Although there could still be disturbance/displacement effects across the forest to wolverines, they would be greatly reduced in this Alternative. Although there could be small localized effects, the proposed winter motorized travel on the BDNF would not be a threat to the wolverine population.

Although Forestwide the percentage of winter motorized travel on wolverine denning habitat didn't change, Alternative 4 proposes to increase slightly areas open to winter motorized travel on wolverine denning habitat to 115,180 acres but still at 64%. Conversely, this decreases the acres of wolverine denning habitat in a non-motorized classification to 65,795 acres but still 36%. Overall, this Alternative, along with Alternative 1 closes the least amount of acres of wolverine modeled denning habitat. There are several areas with wolverine denning habitat that receive regular winter motorized travel, such as the Big Hole, West Pioneer, the Gravelly, and the Clark Fork Flint landscapes where there could be disturbance/displacement effects to wolverines. Although there could be small localized effects, the proposed winter motorized travel on the BDNF would not be a threat to the wolverine population.

Forestwide, Alternative 5 proposes to decrease acres of wolverine denning habitat open to winter motorized travel to approximately 56,660 acres or 31% of the habitat. Conversely this increases the acres of wolverine denning habitat in a non-motorized classification across the forest to approximately 124,315 acres or 69% of the habitat. There is an increase of approximately 351,000 acres of wolverine denning habitat that would be closed under this Alternative forestwide, mostly in the Big Hole, Pioneer, Tobacco Root, and Clark Fork Flint landscapes. As there would still be regular and intermittent winter motorized travel in some of these areas there could still be disturbance/displacement effects across the forest to wolverines but they would be greatly reduced in this Alternative. Although there could be small localized effects, the proposed winter motorized travel on the BDNF would not be a threat to the wolverine population.

Forestwide, Alternative 6 Modified proposes to decrease acres of wolverine denning habitat open to winter motorized travel to approximately 55,213 acres or 31% of the habitat. Conversely this increases the acres of wolverine denning habitat in a non-motorized classification across the forest to approximately 125,763 acres or 69% of the habitat. There is an increase of approximately 352,500 acres of wolverine denning habitat that would be closed under this Alternative forestwide, mostly in the Big Hole, Pioneer, Tobacco Root, and Clark Fork Flint landscapes. As there would still be regular and intermittent winter motorized travel in some of these areas there could still be disturbance/displacement effects across the forest to wolverines but they would be greatly reduced in this Alternative. Although there could be small localized effects, the proposed winter motorized travel on the BDNF would not be a threat to the wolverine population.

Big Hole Landscape

Alternative 1 proposes to keep approximately 19,947 acres or 62% of wolverine denning habitat open to winter motorized travel in the Big Hole landscape. This leaves approximately 12,061 acres or 38% of wolverine denning habitat in a non-motorized classification in this landscape. This alternative, along with Alternative 4, close the least amount of wolverine denning habitat. There are small sections of denning habitat in the northern and eastern parts of the landscape that are open to OSV use but they only get used intermittently. There is a large section of modeled wolverine denning habitat in the southwestern part (Idaho/Montana border) of the landscape that is also open to OSV use. According to the use maps, this area is used on a regular basis through the winter. There is a chance that if a wolverine is in any of these areas at the same time as OSV users, they could be disturbed. This is more likely in the southwestern part of the landscape along the Idaho/Montana border. Although there could be small localized effects, the proposed winter motorized travel in the Big Hole Landscape would not be a threat to the wolverine population.

In the Big Hole landscape, Alternative 2 proposes to decrease areas open to winter motorized travel in wolverine denning habitat to 25% (7,922 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 75% (24,086 acres). There are approximately 12,000 additional acres closed to winter motorized travel. There are additional closures in place for the denning habitat in the southwestern (Idaho/Montana border) and the northern part of the landscape. Small pockets of denning habitat in the eastern part of the

landscape remain open to OSV travel. Although there are still some modeled denning areas open to OSV travel where individual wolverines could be disturbed, that area has been considerably reduced. Although there could be small localized effects, the proposed OSV travel in the Big Hole Landscape would not be a threat to the wolverine population.

In the Big Hole landscape, Alternative 3 proposes to decrease areas open to winter motorized travel in wolverine denning habitat to 9% (2,995 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 91% (29,013 acres). This alternative closes the most modeled wolverine denning habitat. It provides almost 17,000 more acres closed to OSV travel. The largest area of wolverine denning habitat on the Idaho/Montana border would be completely protected from motorized use as well as most of the northers part. The small patches on the eastern edge would not receive any more closures. This area only receives intermittent use, but it is possible that if a wolverine was in this area at the same time as the OSV users, they could be displaced. The chance of a wolverine being displaced by winter motorized travel in the Big Hole landscape has been drastically reduced. Although there could be small localized effects, the proposed winter motorized travel in the Big Hole Landscape would not be a threat to the wolverine population.

Although the percentage of OSV travel didn't change for the Big Hole landscape Alternative 4 proposes to increase slightly areas open to winter motorized travel on wolverine denning habitat to 19,959 acres but still 62%. Conversely, this decreases the acres of wolverine denning habitat in a non-motorized classification to 12,048 acres but still 38%. The effects of this Alternative are identical to Alternative 1. Regular use along the Idaho/Montana border especially, could disturb wolverines. Although there could be small localized effects, the proposed OSV travel in the Big Hole Landscape would not be a threat to the wolverine population.

In the Big Hole landscape, Alternative 5 proposes to decrease areas open to winter motorized travel in wolverine denning habitat to 33% (10,674 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 67% (21,333 acres). Although this area increases non-motorized acres to wolverine denning habitat by approximately 9,000 acres, there is still a large section of denning habitat along the Idaho/Montana border that allows regular OSV use. The eastern part of the landscape also has pockets of denning habitat open to OSVs. Although reduced, there is still a chance of wolverines being disturbed by winter motorized travel, especially in the Idaho/Montana border area. Although there could be small localized effects, the proposed winter motorized travel in the Big Hole Landscape would not be a threat to the wolverine population.

In the Big Hole landscape Alternative 6 Modified proposes to decrease areas open to winter motorized travel in wolverine denning habitat to 37% (11,931 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 63% (20,077 acres). Although this area increases non-motorized acres of wolverine denning habitat by approximately 8,000 acres, there is still a large section of denning habitat along the Idaho/Montana border that allows regular OSV use. The eastern part of the landscape also has pockets of denning habitat open to that use. Although reduced, there is still a chance of wolverines being disturbed by OSV travel, especially in the Idaho/Montana border area.

Although there could be small localized effects, the proposed winter motorized travel in the Big Hole Landscape would not be a threat to the wolverine population.

Boulder River Landscape

Alternatives 1, 2 and 4 propose to keep all (475 acres) of the wolverine denning habitat open to winter motorized travel in the Boulder River landscape. This leaves approximately none of the wolverine denning habitat in a non-motorized classification in this landscape. Based on the use map, there is seldom to no OSV use in the wolverine denning habitat in this landscape. There are areas of high use in this landscape but they are over a mile away. Although all denning habitat is open for use, it would be extremely unlikely that there would be effects to wolverine from OSV travel in these Alternatives. Although there could be small localized effects, the proposed OSV travel in the Boulder River Landscape would not be a threat to the wolverine population.

In the Boulder River landscape Alternative 3 proposes to decrease areas open to OSV travel in wolverine denning habitat to 51% (241 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 49% (234 acres). In this Alternative, a under over half of the denning habitat would be closed to OSV travel. However, as there is seldom to no OSV use in the wolverine denning habitat in this landscape the effects won't change from Alternative 1. It would be extremely unlikely that there would be effects to wolverine from OSV travel in this Alternative. Although there could be small localized effects, the proposed OSV travel in the Boulder River Landscape would not be a threat to the wolverine population.

In the Boulder River landscape, Alternative 5 proposes to decrease areas open to OSV travel in wolverine denning habitat to 46% (219 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 54% (255 acres). In this Alternative, a little over half of the denning habitat would be closed to OSV travel. However, as there is seldom to no OSV use in the wolverine denning habitat in this landscape the effects won't change from Alternative 1. It would be extremely unlikely that there would be effects to wolverine from OSV travel in this Alternative. Although there could be small localized effects, the proposed OSV travel in the Boulder River Landscape would not be a threat to the wolverine population.

In the Boulder River landscape, Alternative 6 Modified proposes to decrease areas open to OSV travel in wolverine denning habitat to 50% (237 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 50% (237 acres). In this Alternative, a half of the denning habitat would be closed to OSV travel. However, as there is seldom to no OSV use in the wolverine denning habitat in this landscape the effects won't change from Alternative 1. It would be extremely unlikely that there would be effects to wolverine from OSV travel in this Alternative. Although there could be small localized effects, the proposed OSV travel in the Boulder River Landscape would not be a threat to the wolverine population.

Clark Fork Flint Landscape

Alternative 1 proposes to keep approximately 12,970 acres or 90% of wolverine denning habitat open to OSV travel in the Clark Fork Flint landscape. This leaves approximately 1,395 acres or

10% of wolverine denning habitat in a non-motorized classification in this landscape. This alternative, along with Alternative 4, closes the least amount of acres of wolverine denning habitat. There are many areas of denning habitat in this landscape that are open to OSV use. A little over half of those acres open received intermittent use while the rest receive little to none. There is a chance that if a wolverine is in any of these areas at the same time as OSV users, they could be disturbed. This is more likely in the Fred Burr Pass Area or in the southern part of the landscape southwest of Anaconda. Although there could be small localized effects, the proposed OSV travel in the Clark Fork Flint Landscape would not be a threat to the wolverine population.

In the Clark Fork Flint landscape, Alternative 2 proposes to decrease areas open to OSV travel in wolverine denning habitat to 76% (10,887 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 24% (3,478 acres). There are approximately 2,000 additional acres closed to OSV travel. Although there are additional closures in denning habitat throughout the landscape, there is still a fair amount open to intermittent OSV travel where individual wolverines could be disturbed by OSV travel. Although there could be small localized effects, the proposed OSV travel in the Clark Fork Flint Landscape would not be a threat to the wolverine population.

In the Clark Fork Flint landscape, Alternative 3 proposes to decrease areas open to OSV travel in wolverine denning habitat to 37% (5,287 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 63% (9,078 acres). This alternative closes the most acres of wolverine denning habitat. It provides almost 7,600 more acres closed to OSV travel. Two large areas of modeled wolverine denning habitat would be protected from motorized use in the Racetrack Peak area and southwest of Anaconda. The Fred Burr Pass area would not receive any additional closures. This area only receives intermittent use, but it is possible that if a wolverine was in this area at the same time the motorized users, it could be displaced. The chance of a wolverine being displaced by OSV travel in the Clark Fork Flint landscape has been drastically reduced. Although there could be small localized effects, the proposed OSV travel in the Clark Fork Flint Landscape would not be a threat to the wolverine population.

In the Clark Fork Flint landscape Alternative 4 proposes to retain the existing areas open to OSV travel in wolverine denning habitat at 90% (12,970 acres). This conversely retains acres of wolverine denning habitat in a non-motorized classification at 10% (1,395 acres). Effects to wolverine denning habitat from this Alternative are identical to Alternative 1. There is a chance of disturbance to individual wolverines from intermittent OSV travel. Although there could be small localized effects, the proposed OSV travel in the Clark Fork Flint Landscape would not be a threat to the wolverine population.

In the Clark Fork Flint landscape, Alternative 5 proposes to decrease areas open to OSV travel in wolverine denning habitat to 63% (9,080 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 37% (5,285 acres). There are approximately 3,800 additional acres closed to OSV travel. Although there are additional closures in denning habitat throughout the landscape, there is still a fair amount open to intermittent OSV travel where individual wolverines could be disturbed by OSV travel. Although

there could be small localized effects, the proposed OSV travel in the Clark Fork Flint Landscape would not be a threat to the wolverine population.

In the Clark Fork Flint landscape, Alternative 6 Modified proposes to decrease areas open to OSV travel in wolverine denning habitat to 58% (8,317 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 42% (6,048 acres). This alternative closes almost 4,600 more acres to OSV travel. Several areas of modeled wolverine denning habitat would be closed to OSV use in the Pikes Peak and Stucky Ridge areas and southwest of Anaconda. Neither the Fred Burr Pass nor the Racetrack Peak areas would receive any additional closures. These areas receive intermittent and little to no use, but it is possible that if a wolverine was in this area at the same time the motorized users, it could be displaced. The chance of a wolverine being displaced by OSV travel in the Clark Fork Flint landscape has been reduced in this Alternative. Although there could be small localized effects, the proposed OSV travel in the Clark Fork Flint Landscape would not be a threat to the wolverine population.

Gravelly Landscape

Alternative 1 proposes to keep approximately 11,669 acres or 75% of wolverine denning habitat open to OSV travel in the Gravelly landscape. This leaves approximately 3,813 acres or 25% of wolverine denning habitat in a non-motorized classification in this landscape. This alternative, along with Alternative 4, close the least amount of acres of wolverine modeled denning habitat. Although much of the Snowcrest Mountains are already closed to OSV travel, some still remains open. The areas left open however receive little to no motorized use during the winter so potential effects to wolverines are unlikely. There are a few other large sections in the center of the landscape that also remain open for OSV travel. Lion Mountain has modeled denning habitat and also receives regular use by OSVs. Wolverines could be disturbed/displaced if they were in the same area at the same time. Cave Mountain is another area with a fair amount of wolverine denning habitat but it receives little to no use therefore the chance of disturbing wolverines is unlikely. The other area with a large amount of modeled wolverine denning habitat is in the Mount Jefferson area. Currently there are no closures and this is a high use area so there is a chance that wolverines could be disturbed/displaced by OSV travel in this area. Although there could be small localized effects, the proposed OSV travel in the Gravelly Landscape would not be a threat to the wolverine population.

In the Gravelly landscape, Alternative 2 proposes to decrease areas open to OSV travel in wolverine denning habitat to 60% (9,296 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 40% (6,186 acres). This alternative reduces potential effects to wolverine modeled denning habitat by closing an additional 2,300 acres. The main differences are additional closures in the Snowcrest Mountains and the Mount Jefferson area would be completely closed. The effects from OSV travel would be reduced in the Snowcrest Mountains and eliminated in the Mount Jefferson Area. There are still a few other large sections in the center of the landscape that also remain open for OSV travel. Lion Mountain has modeled denning habitat and also receives regular use by OSVs. Wolverines could be disturbed/displaced if they were in the same area at the same time. Cave Mountain is another area with a fair amount of wolverine denning habitat but it receives little to no use therefore the chance of disturbing wolverines is unlikely. Although

there could be small localized effects, the proposed OSV travel in the Gravelly Landscape would not be a threat to the wolverine population.

In the Gravelly landscape, Alternative 3 proposes to decrease areas open to OSV travel in wolverine denning habitat to 5% (730 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 95% (14,752 acres). This alternative closes almost all modeled denning habitat to OSV travel. This alternative reduces potential effects to wolverine modeled denning habitat by closing approximately 11,000 more acres to OSV use. In this alternative both the Snowcrest Mountains and the Mount Jefferson area would be completely closed. The effects from OSV travel would be eliminated in the Snowcrest Mountains, Lion Mountain, Cave Mountain, and in the Mount Jefferson Area. There are still small sections of modeled denning habitat that remain open for OSV travel. As these areas are on regularly utilized routes, wolverines could be disturbed/displaced if they were in the same area at the same time. Although there is a chance of disturbance in this landscape, it has been drastically reduced in this Alternative. Although there could be small localized effects, the proposed OSV travel in the Gravelly Landscape would not be a threat to the wolverine population.

In the Gravelly landscape, Alternative 4 proposes to retain the existing areas open to OSV travel in wolverine denning habitat at 75% (11,669 acres). This conversely retains acres of wolverine denning habitat in a non-motorized classification at 25% (3,813 acres). This alternative, along with Alternative 1, close the least amount of acres of wolverine modeled denning habitat. The effects to wolverine denning habitat would be identical to Alternative 1. There are several areas in this landscape that are utilized regularly by OSVs that are also in modeled wolverine denning habitat, such as Lion Mountain, Cave Mountain, and Mount Jefferson, where there is a chance that wolverines could be disturbed/displaced by OSV travel in this area. Although there could be small localized effects, the proposed OSV travel in the Gravelly Landscape would not be a threat to the wolverine population.

In the Gravelly landscape, Alternative 5 proposes to decrease areas open to OSV travel in wolverine denning habitat to 21% (3,205 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 79% (12,276 acres). This alternative reduces potential effects to wolverine modeled denning habitat by closing an additional 8,400 acres. As in Alternative 3, both the Snowcrest Mountains and the Mount Jefferson area would be completely closed. The effects from OSV travel would be eliminated in the Snowcrest Mountains and in the Mount Jefferson Area. Cave Mountain is another area with a fair amount of wolverine denning habitat where there are increased closures. The Lion Mountain area which has modeled denning habitat and also receives regular use by OSVs is one of the few places left open to OSV travel in this Alternative. Wolverines could be disturbed/displaced if they were in the same area at the same time. Although there is still a chance for wolverines to be displaced/disturbed, the risks have been greatly reduced. Although there could be small localized effects, the proposed OSV travel in the Gravelly Landscape would not be a threat to the wolverine population.

In the Gravelly landscape, Alternative 6 Modified proposes to decrease areas open to OSV travel in wolverine denning habitat to 27% (4,218 acres). Conversely, this increases the acres of

wolverine denning habitat in a non-motorized classification to 73% (11,264 acres). This alternative reduces potential effects to wolverine modeled denning habitat by closing an additional 7,400 acres. Both the Snowcrest Mountains and the Cave Mountain area would be completely closed. The effects from OSV travel would be eliminated in these two areas. In this Alternative, only the wilderness sturdy area of the Mount Jefferson area would be closed to OSV travel. This leaves a high use area open on the south side of Mount Jefferson. The Lion Mountain area which has modeled denning habitat and also receives regular use by OSVs, is the other place left open to OSV travel in this Alternative. Wolverines could be disturbed/displaced if they were in either of these area at the same time as the OSVs. Although there is still a chance for wolverines to be displaced/disturbed, in both the Lion Mountain and Mount Jefferson areas, modeled wolverine denning habitat has been greatly reduced in this Alternative. Although there could be small localized effects, the proposed OSV travel in the Gravelly Landscape would not be a threat to the wolverine population.

Jefferson River Landscape

Alternatives 1 and 4 propose to keep all (3,757 acres) the wolverine denning habitat open to OSV travel in the Jefferson River Landscape. This leaves approximately none of the wolverine denning habitat in a non-motorized classification in this landscape. Although this Alternative, along with Alternative 4, close the least amount of acres of wolverine denning habitat, there is little to no use by OSV travelers in the denning habitat in this landscape. Disturbance/displacement of wolverines from OSV travel in this landscape is unlikely. Although there could be small localized effects, the proposed OSV travel in the Jefferson River Landscape would not be a threat to the wolverine population.

In the Jefferson River landscape Alternative 2 proposes to decrease areas open to OSV travel in wolverine denning habitat to 8% (295 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 92% (3,462 acres). In this Alternative, there are approximately 3,500 additional acres closed to OSV travel. A good portion of the denning habitat on Red and Table Mountains would be closed under this Alternative. Small pockets of denning habitat scattered throughout the landscape remain open, although they receive little to no use. It is unlikely that a wolverine would be disturbed/displaced by OSV travel in this Alternative. Although there could be small localized effects, the proposed OSV travel in the Jefferson River Landscape would not be a threat to the wolverine population.

In the Jefferson River landscape Alternative 3 proposes to decrease areas open to OSV travel in wolverine denning habitat to 2% (83 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 98% (3,673 acres). This alternative closes almost all modeled denning habitat to OSV travel. This alternative reduces potential effects to wolverine modeled denning habitat by closing approximately 3,670 more acres. Almost all of the modeled denning habitat on Red and Table Mountains would be closed to OSV travel. There would still be small sections of modeled denning habitat that remain open for OSV travel scattered throughout the landscape. As these areas receive little to no use, it is unlikely that wolverines would be disturbed/displaced if they were in the same area at the same time. Although there is a slight chance of disturbance in this landscape, it has been drastically reduced in this Alternative. Although there could be small localized effects, the proposed OSV

travel in the Jefferson River Landscape would not be a threat to the wolverine population.

In the Jefferson River landscape Alternative 5 proposes to decrease areas open to OSV travel in wolverine denning habitat to 6% (237 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 94% (3,520 acres). This alternative reduces potential effects to wolverine modeled denning habitat by closing approximately 3,500 more acres. Much of the modeled denning habitat on Red and Table Mountains would be closed to OSV travel. There would still be small sections of modeled denning habitat that remain open for OSV travel scattered throughout the landscape. As these areas receive little to no use, it is unlikely that wolverines would be disturbed/displaced if they were in the same area at the same time. Although there is a slight chance of disturbance in this landscape, it has been drastically reduced in this Alternative. Although there could be small localized effects, the proposed OSV travel in the Jefferson River Landscape would not be a threat to the wolverine population.

In the Jefferson River landscape Alternative 6 Modified proposes to decrease areas open to OSV travel in wolverine denning habitat to 1% (34 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 99% (3,722 acres). This alternative closes the most acres of wolverine denning habitat. Over 3,700 more acres closed to OSV travel. The largest area of wolverine denning habitat on Red and Table Mountains would be completely closed to OSV use. There are a few small patches of wolverine denning habitat that are not closed in this Alternative, but they receive little to no use from OSVs. There is almost no chance for a wolverine to be displaced/disturbed in this Alternative. Although unlikely, there could be small localized effects, the proposed OSV travel in the Jefferson River Landscape would not be a threat to the wolverine population.

Lima Tendoy Landscape

Alternatives 1 and 4 propose to keep approximately 15,976 acres or 62% of wolverine denning habitat open to OSV travel in the Lima Tendoy landscape. This leaves approximately 9,821 acres or 38% of wolverine denning habitat in a non-motorized classification in this landscape. Although 62% of this landscape is open to OSV travel, there is seldom to no use in this area. It is extremely unlikely that a wolverine would be disturbed/displaced by OSV travel in this landscape. Although there could be small localized effects, the proposed OSV travel in the Lima Tendoy Landscape would not be a threat to the wolverine population.

In the Lima Tendoy landscape Alternative 2 proposes to retain the existing areas open to OSV travel in wolverine denning habitat at 62% (15,976 acres). This conversely retains acres of wolverine denning habitat in a non-motorized classification at 38% (9,821 acres). Although 62% of this landscape is open to OSV travel, there is seldom to no use in this area. It is extremely unlikely that a wolverine would be disturbed/displaced by OSV travel in this landscape. Although there could be small localized effects, the proposed OSV travel in the Lima Tendoy Landscape would not be a threat to the wolverine population.

In the Lima Tendoy landscape Alternative 3 proposes to decrease areas open to OSV travel in wolverine denning habitat to 31% (7,893 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 69% (17,904 acres). Even though

this Alternative closes the most acres of modeled wolverine habitat to OSV travel, as mentioned in Alternative 1, there is seldom to no use in this area. It is extremely unlikely that a wolverine would be disturbed/displaced by OSV travel in this landscape. Although there could be small localized effects, the proposed OSV travel in the Lima Tendoy Landscape would not be a threat to the wolverine population.

In the Lima Tendoy landscape Alternative 5 proposes to decrease areas open to OSV travel in wolverine denning habitat to 46% (11,954 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 54% (13,844 acres). Even though this Alternative has increased closures in modeled wolverine habitat from OSV travel, as mentioned in Alternative 1, there is seldom to no use in this area. It is extremely unlikely that a wolverine would be disturbed/displaced by OSV travel in this landscape. Although there could be small localized effects, the proposed OSV travel in the Lima Tendoy Landscape would not be a threat to the wolverine population.

In the Lima Tendoy landscape Alternative 6 Modified proposes to decrease areas open to OSV travel in wolverine denning habitat to 35% (9,067 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 65% (16,731 acres). Even though this Alternative increases closures in modeled wolverine habitat to OSV travel, as mentioned in Alternative 1, there is seldom to no use in this area. It is extremely unlikely that a wolverine would be disturbed/displaced by OSV travel in this landscape. Although there could be small localized effects, the proposed OSV travel in the Lima Tendoy Landscape would not be a threat to the wolverine population.

Madison Landscape

Alternatives 1 and 4 propose to keep approximately 1,242 acres or 4% of wolverine denning habitat open to OSV travel in the Madison landscape. This leaves approximately 27,435 acres or 96% of wolverine denning habitat in a non-motorized classification in this landscape. Most of this landscape is within the Lee Metcalf Wilderness which is already closed to OSV travel. Although there are areas outside of wilderness where OSV travel is allowed, according to both recreation specialists on the Forests and the local MFWP biologist (Pers. com. 2016), there is no OSV travel in this area. No effects from OSV travel on wolverine denning habitat in this Landscape are expected.

In the Madison landscape Alternative 2 proposes to decrease areas open to OSV travel in wolverine denning habitat to 2% (585 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 98% (28,092 acres). Most of this landscape is within the Lee Metcalf Wilderness which is already closed to OSV travel. Although areas outside of wilderness where OSV travel is allowed has been reduced in this Alternative, according to both recreation specialists on the Forests and the local MFWP biologist (Pers. com. 2016), there is no OSV travel in this area. No effects from OSV travel on wolverine denning habitat in this Landscape are expected.

In the Madison landscape Alternative 3 proposes to decrease areas open to OSV travel in wolverine denning habitat to 0.8% (219 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 99% (28,458 acres). Most of this landscape

is within the Lee Metcalf Wilderness which is already closed to OSV travel. Almost all modeled wolverine denning habitat is closed in this Alternative. There would be no effects to wolverines or wolverine denning habitat in this Alternative because according to both recreation specialists on the Forests and the local MFWP biologist (Pers. com. 2016), there is no OSV travel in this area. No effects from OSV travel on wolverine denning habitat in this Landscape are expected.

In the Madison landscape Alternative 5 proposes to decrease areas open to OSV travel in wolverine denning habitat to 0.8% (219 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 99% (28,458 acres). Most of this landscape is within the Lee Metcalf Wilderness which is already closed to OSV travel. Almost all modeled wolverine denning habitat is closed in this Alternative. There would be no effects to wolverines or wolverine denning habitat in this Alternative because according to both recreation specialists on the Forests and the local MFWP biologist (Pers. com. 2016), there is no OSV travel in this area. No effects from OSV travel on wolverine denning habitat in this Landscape are expected.

In the Madison landscape Alternative 6 Modified proposes to decrease areas open to OSV travel in wolverine denning habitat to 2% (469 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 98% (28,209 acres). Most of this landscape is within the Lee Metcalf Wilderness which is already closed to OSV travel. Almost all modeled wolverine denning habitat is closed in this Alternative. There would be no effects to wolverines or wolverine denning habitat in this Alternative because according to both recreation specialists on the Forests and the local MFWP biologist (Pers. com. 2016), there is no OSV travel in this area. No effects from OSV travel on wolverine denning habitat in this Landscape are expected.

Pioneer Landscape

Alternatives 1 and 4 proposes to keep approximately 29,647 acres or 98% of wolverine denning habitat open to OSV travel in the Pioneer landscape. This leaves approximately 760 acres or 2% of wolverine denning habitat in a non-motorized classification in this landscape. This alternative, along with Alternative 4, close the least amount of acres of wolverine modeled denning habitat. The West Pioneers area is used regularly for OSV travel. Denning habitat on this side is scattered across the landscape. As there is regular use by OSVs in modeled wolverine denning habitat in the West Pioneers, there is a chance that wolverines could be disturbed/displaced by OSV travel in this area. The East Pioneers contain the most modeled denning habitat in this landscape. The south half of the East Pioneers received little to no use so the chances that a wolverine would be disturbed/displaced are unlikely. The north half of the East Pioneers is utilized on an intermittent basis by people on OSVs. Although there is less of a chance, it is still possible that wolverines could be disturbed/displaced by OSV travel in this area. Although there could be small localized effects, the proposed OSV travel in the Pioneer Landscape would not be a threat to the wolverine population.

In the Pioneer landscape Alternative 2 proposes to decrease areas open to OSV travel in wolverine denning habitat to 48% (14,600 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 52% (15,807 acres). In this Alternative, there are approximately 15,000 additional acres closed to OSV travel. The West

Pioneers area is used regularly for OSV travel. Denning habitat on this side is scattered across the landscape. As there is regular use by OSVs in modeled wolverine denning habitat in the West Pioneers, there is a chance that wolverines could be disturbed/displaced by OSV travel in this area. The East Pioneers contains the most modeled denning habitat in this landscape. The south half of the East Pioneers received little to no use so the chances that a wolverine would be disturbed/displaced are unlikely. The north half of the East Pioneers is utilized on an intermittent basis by people on OSVs. Although there is less of a chance, it is still possible that wolverines could be disturbed/displaced by OSV travel in this area. This Alternative closes a good portion of the wolverine denning habitat in the southern half of the East Pioneers and into the northern area as well. Although there could still be disturbance/displacement effects to wolverines, it is greatly reduced in this Alternative. Although there could be small localized effects, the proposed OSV travel in the Pioneer Landscape would not be a threat to the wolverine population.

In the Pioneer Landscape, Alternative 3 proposes to decrease areas open to OSV travel in wolverine denning habitat to 39% (11,780 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 61% (18,627 acres). This alternative closes the most wolverine denning habitat to OSV travel. In this Alternative, there are approximately 17,900 additional acres closed. The West Pioneers area is used regularly for OSV travel. Denning habitat on this side is scattered across the landscape. As there is regular use by OSVs in modeled wolverine denning habitat in the West Pioneers, there is a chance that wolverines could be disturbed/displaced by OSV travel in this area. The East Pioneers contains the most modeled denning habitat in this landscape. This alternative closes a major portion of the wolverine denning habitat in the East Pioneers. Some areas of intermittent use for OSV travel remains open in the East Pioneers. There is less of a chance, but it is still possible that wolverines could be disturbed/displaced by OSV travel in this area. Although there could still be disturbance/displacement effects to wolverines, it is greatly reduced in this Alternative. Although there could be small localized effects, the proposed OSV travel in the Pioneer Landscape would not be a threat to the wolverine population.

In the Pioneer landscape Alternatives 5 proposes to decrease areas open to OSV travel in wolverine denning habitat to 40% (12,076 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 60% (18,331 acres). In this Alternative, there are approximately 17,600 additional acres closed to OSV travel. The West Pioneers area is used regularly for OSV travel. Denning habitat on this side is scattered across the landscape. As there is regular use by OSVs in modeled wolverine denning habitat in the West Pioneers, there is a chance that wolverines could be disturbed/displaced by OSV travel in this area. The East Pioneers contains the most modeled denning habitat in this landscape. This alternative closes a major portion of the wolverine denning habitat in the East Pioneers. Some areas of intermittent use for OSV travel remains open in the East Pioneers. There is less of a chance, but it is still possible that wolverines could be disturbed/displaced by OSV travel in this area. Although there could still be disturbance/displacement effects to wolverines, it is greatly reduced in this Alternative. Even though there could be small localized effects, the proposed OSV travel in the Pioneer Landscape would not be a threat to the wolverine population.

In the Pioneer landscape Alternative 6 Modified proposes to decrease areas open to OSV travel

in wolverine denning habitat to 40% (12,087 acres). Conversely, this increases the acres of wolverine denning habitat in a non-motorized classification to 60% (18,320 acres). Similar to Alternative 5, in this Alternative, there are approximately 17,600 additional acres closed to OSV travel. The West Pioneers area is used regularly for OSV travel. Denning habitat on this side is scattered across the landscape. As there is regular use by OSVs in modeled wolverine denning habitat in the West Pioneers, there is a chance that wolverines could be disturbed/displaced by OSV travel in this area. The East Pioneers hold the most modeled denning habitat in this landscape. This alternative closes a major portion of the wolverine denning habitat in the East Pioneers. Some areas of intermittent use for OSV travel remains open in the East Pioneers. There is less of a chance, but it is still possible that wolverines could be disturbed/displaced by OSV travel in this area. Although there could still be disturbance/displacement effects to wolverines, it is greatly reduced in this Alternative. Although there could be small localized effects, the proposed OSV travel in the Pioneer Landscape would not be a threat to the wolverine population.

Tobacco Root Landscape

Alternatives 1 and 4 propose to keep approximately 17,473 acres or 84% of wolverine denning habitat open to OSV travel in the Tobacco Root landscape. This leaves approximately 3,298 acres or 16% of wolverine denning habitat in a non-motorized classification in this landscape. Although a high percentage of wolverine denning habitat is open to OSV travel, it is rarely used, if ever. There are a few high use routes that stop at denning habitat. Most of the use, which is intermittent, is in the southern half of the Tobacco Roots, not in denning habitat. Although that is the case, with advances in OSVs it is possible that at some point, wolverines may be disturbed/displaced by use in this landscape. Although unlikely, there could be small localized effects; the proposed OSV travel in the Tobacco Root Landscape would not be a threat to the wolverine population.

In the Tobacco Root landscape Alternative 2 proposes to retain the existing areas open to OSV travel in wolverine denning habitat at 84% (17,473 acres). This conversely retains acres of wolverine denning habitat in a non-motorized classification at 16% (3,298 acres). Although a high percentage of wolverine denning habitat is open to OSV travel, it is rarely used, if ever. There are a few high use routes that stop at denning habitat. Most of the use, which is intermittent, is in the southern half of the Tobacco Root Landscape, not in denning habitat. Although that is the case, with advances in OSVs it is possible that at some point, wolverines may be disturbed/displaced by use in this landscape. Although unlikely, there could be small localized effects; the proposed OSV travel in the Tobacco Root Landscape would not be a threat to the wolverine population.

In the Tobacco Root landscape Alternative 3 proposes to decrease areas open to OSV travel in wolverine denning habitat to 23% (4,795 acres). Conversely, this increases acres of wolverine denning habitat in a non-motorized classification at 77% (15,977 acres). This alternative closes the most wolverine denning habitat in this landscape. Approximately 12,700 acres more are closed to OSV travel in this Alternative. At this time, the modeled denning habitat that is left open gets little no use by OSVs. Most of the use surrounding the denning habitat gets intermittent use. Although that is the case, with advances in OSVs it is possible that at some

point, wolverines may be disturbed/displaced by use in this landscape, but the chances of this happening are drastically reduced. Although unlikely, there could be small localized effects; the proposed OSV travel in the Tobacco Root Landscape would not be a threat to the wolverine population.

In the Tobacco Root landscape Alternative 5 proposes to decrease areas open to OSV travel in wolverine denning habitat to 34% (6,992 acres). Conversely, this increases acres of wolverine denning habitat in a non-motorized classification at 66% (13,779 acres). Approximately 10,500 acres more are closed to OSV travel in this Alternative. At this time, the modeled denning habitat that is left open gets little no use by OSVs. Most of the use surrounding the denning habitat is intermittent. Although that is the case, with advances in OSVs it is possible that at some point, wolverines may be disturbed/displaced by use in this landscape, but the chances of this happening are drastically reduced. Although unlikely, there could be small localized effects; the proposed OSV travel in the Tobacco Root Landscape would not be a threat to the wolverine population.

In the Tobacco Root landscape Alternative 6 Modified proposes to decrease areas open to OSV travel in wolverine denning habitat to 37% (7,672 acres). Conversely, this increases acres of wolverine denning habitat in a non-motorized classification at 63% (13,099 acres). Approximately 9,800 acres more are closed to OSV travel in this Alternative. At this time, the modeled denning habitat that is left open gets little no use by OSVs. Most of the use surrounding the denning habitat is intermittent. Although that is the case, with advances in OSVs it is possible that at some point, wolverines may be disturbed/displaced by use in this landscape, but the chances of this happening are drastically reduced. Although unlikely, there could be small localized effects; the proposed OSV travel in the Tobacco Root Landscape would not be a threat to the wolverine population.

Upper Clark Fork Landscape

Alternatives 1, 2, 3 and 4 propose to keep all (111 acres) the wolverine denning habitat open to OSV travel in the Upper Clark Fork landscape. This leaves none of the wolverine denning habitat in a non-motorized classification in this landscape. The small amount of wolverine denning habitat in this landscape is mainly adjacent to the Mount Haggin State Wildlife Management Area (WMA) on the western edge and it receives intermittent OSV use. There is a chance for disturbance to wolverines from this use. There are only 9 other acres of modeled denning habitat on the east side of the landscape, on the continental divide approximately 1.5 miles east of Butte which receives no OSV use. There would be no anticipated impacts to this piece of wolverine denning habitat from this Alternative. This is the only Landscape on the BDNF with no wolverine sightings. Although extremely unlikely, there could be small localized effects; the proposed OSV travel in the Upper Clark Fork Landscape would not be a threat to the wolverine population.

In the Upper Clark Fork landscape Alternatives 5 and 6 propose to decrease areas open to OSV travel in wolverine denning habitat to 92% (102 acres). Conversely, this increases acres of wolverine denning habitat in a non-motorized classification at 8% (9 acres). Although the nine acres on the Continental Divide near Butte would be closed, effects to wolverines from OSV

travel would be exactly the same as for Alternative 1. There would only be a slight chance of disturbance to wolverines on the small modeled denning habitat adjacent to Mount Haggin WMA. This is the only Landscape on the BDNF with no wolverine sightings. Although extremely unlikely, there could be small localized effects; the proposed OSV travel in the Upper Clark Fork Landscape would not be a threat to the wolverine population.

Upper Rock Creek Landscape

Alternatives 1, 2, 4 and 5 propose to keep approximately 1,902 acres or 21% of wolverine denning habitat open to OSV travel in the Upper Rock Creek landscape. This leaves approximately 7,224 acres or 79% of wolverine denning habitat in a non-motorized classification in this landscape. Most of the modeled wolverine denning habitat in this landscape is associated with the Anaconda-Pintler Wilderness and is therefore non-motorized. The two larger areas that are open to OSV travel are around Mount Emerine and Rooster Comb, adjacent to the Bitterroot National Forest. As the Mount Emerine area receives regular OSV travel, there is a chance that if wolverines are in the area at the same time, they could be displaced/disturbed. The Rooster Comb area receives intermittent use so although disturbance could happen, it is less likely. Although there could be small localized effects, the proposed OSV travel in the Upper Rock Creek Landscape would not be a threat to the wolverine population.

In the Upper Rock Creek landscape Alternative 3 proposes to decrease areas open to OSV travel in wolverine denning habitat to 17% (1,532 acres). Conversely, this increases acres of wolverine denning habitat in a non-motorized classification at 83% (7,593 acres). This alternative closes approximately 370 additional acres of modeled denning habitat along the edge of the Anaconda-Pintler Wilderness. Potential effects to modeled wolverine denning habitat in the Mount Emerine and the Rooster Comb area are the same as Alternative 1 as they are still open to OSV travel. Although there could be small localized effects, the proposed OSV travel in the Upper Rock Creek Landscape would not be a threat to the wolverine population.

In the Upper Rock Creek landscape Alternative 6 Modified proposes to decrease areas open to OSV travel in wolverine denning habitat to 12% (1,079 acres). Conversely, this increases acres of wolverine denning habitat in a non-motorized classification at 88% (8,047 acres). This alternative closes the most, approximately 800 more acres, of modeled denning habitat. Not only are there additional closures along the edge of the Anaconda-Pintler wilderness, but part of the Rooster Comb area that falls within the wilderness study area would also be closed. That said there is a chance that if wolverines are in the area at the same time, they could be displaced/disturbed as the Mount Emerine area would still be open to motorized travel. Although there could be small localized effects, the proposed OSV travel in the Upper Rock Creek Landscape would not be a threat to the wolverine population.

Summary Statement

In all alternatives, OSV travel would be allowed within some of the wolverine denning habitat across the Forest and may disturbance individual wolverines, specifically females and their young. However in the proposed rule, the USFWS recognized that high recreational use may coincide with wolverine habitat in some areas, and that there may be some localized small-scale effects to wolverines in these areas however, significant effects to wolverines from winter

recreation remain to be demonstrated scientifically (USFWS, 2013d). Additionally, preliminary results from an ongoing study by Heinenmeyer et al. on the potential impacts of winter recreation on wolverines in central Idaho indicate that wolverines are present and reproducing in this area in spite of heavy recreational use, including a developed ski area; dispersed winter and summer recreation; and dispersed snowmobile use (USDI Fish and Wildlife Service, 2013d).

In 2014, Region 1 prepared a biological assessment on the effects of forest plan activities, including OSV travel, on the wolverine. Although conferencing was not required, the Region requested concurrence from USFWS. The Region determined that activities as described, including OSV travel, "will not jeopardize the continued existence of the DPS of the North American wolverine." (USFS 2014). In May 2014, the USFWS concurred with the Region's finding for all forests in the Northern Region, including the Beaverhead-Deerlodge NF (USFWS 2014). Based on the above information, **although there could be small localized effects, the proposed OSV travel on the BDNF would not jeopardize the wolverine population.**

Wolverine Maternal Habitat (Inman et al. 2013)

During the public comment period, there was a concern that the latest science was not being utilized in the wolverine analysis. Inman et al. 2013, is more current research than the wolverine denning model (Heinemeyer et al. 2001) that was utilized in the DSEIS. Inman et al. 2013 developed data layers for the purposes of "…wolverine conservation, including population and land management decisions, especially at the scale of the population, i.e. western United States." These wolverine habitat predictions (areas suitable for survival, reproduction and dispersal) "…were developed using radio-telemetry data collected in the Yellowstone Region of the United States and Resource Selection Function (RSF) modeling...", including the Gravelly and Madison Landscapes of the BDNF. Four data layers were developed:

- Primary wolverine habitat – "areas suitable for long-term survival (use by resident adults)"
- Male and female dispersal habitats – "areas used briefly, i.e. on the order of days or weeks rather than months or years, while moving between patches of primary habitat"
- Maternal habitat – "areas of high enough quality that female wolverines are capable of locating natal dens and rendezvous sites within"

According to Inman et al. their "…estimate of primary habitat and the spring snow model of Copeland et al. (2010) matched well, concurring across >96% of the western US. This level of agreement derived from different approaches, i.e., a global-scale bioclimatic envelope and a regional telemetry-based RSF, suggests that distribution of wolverine habitat is fairly well described." Please see Figure F- 1 for a map of Copeland et al. 2010 with denning habitat based on Heinemeyer et al. 2001 and Figure F- 8 for a map of denning habitat based on Inman et al. 2013.

Again, as stated at the beginning of this section, the highest potential for negative disturbance impacts is theorized to be disturbance at den sites. Therefore the female maternal habitat is the most appropriate layer to utilize for analyzing effects to wolverine habitat from OSV travel. However it is important to note that the maternal habitat includes use at rendezvous sites. Inman et al. 2007 found that generally the wolverines in their study utilized rendezvous sites from April 29 - July 2. OSV travel ends, at the latest, May 15 on the BDNF; therefore there

would be little overlap with OSV use and the use of rendezvous sites.

Figure F- 8 in Appendix F and Table 30 below displays the existing condition of modeled wolverine maternal habitat (Inman et al. 2013) on NFS lands by landscape.

Table 30: Existing condition of modeled wolverine maternal habitat (Inman et. al. 2013) on NFS lands by landscape

Landscape	Total Acres Maternal Habitat	Percent Maternal Habitat NFS
Big Hole	79,694	15%
Boulder River	1,235	1%
Clark Fork Flint	63,551	17%
Gravelly	52,709	11%
Jefferson River	2,011	1%
Lima Tendoy	19,844	5%
Madison	86,128	70%
Pioneer	76,827	13%
Tobacco Root	56,129	32%
Upper Clark Fork	0	0%
Upper Rock Creek	47,399	17%
Total Acres Maternal Habitat	**485,528**	14%

Table 31 below displays the percentages of modeled wolverine maternal habitat (Inman et al. 2013) on NFS lands open to winter motorized travel by landscape and alternative. Figure F- 9 through Figure F- 14 display modeled wolverine maternal habitat (Inman et al. 2013) on NFS lands open to winter motorized travel by landscape and alternative.

Table 31: Percentages of modeled wolverine maternal habitat (Inman et al. 2013) on NFS lands open to winter motorized travel by landscape and alternative

Landscape	Acres Wolverine Maternal Habitat	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6 Modified
Big Hole	79,694	61%	24%	10%	61%	35%	37%
Boulder River	1,235	100%	100%	100%	100%	100%	100%
Clark Fork Flint	63,551	93%	89%	52%	93%	71%	73%
Gravelly	52,709	75%	65%	8%	75%	21%	25%

Landscape	Acres Wolverine Maternal Habitat	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6 Modified
Jefferson River	2,011	100%	13%	2%	100%	9%	1%
Lima Tendoy	19,844	64%	64%	61%	64%	64%	61%
Madison	86,128	6%	4%	1%	6%	1%	3%
Pioneer	76,827	99%	49%	43%	99%	44%	44%
Tobacco Root	56,129	91%	91%	33%	91%	42%	48%
Upper Clark Fork	0	0%	0%	0%	0%	0%	0%
Upper Rock Creek	47,399	51%	51%	43%	51%	51%	20%
Totals	485,528	66%	50%	27%	66%	37%	55%

Forestwide

Alternative 3 leaves the least amount of wolverine maternal habitat open to OSV travel at 27 percent followed by Alternative 5 (37%), Alternative 2(50%), and then Alternative 6 Modified (55%). Alternatives 1 and 4 leave the largest amount (66%) of modeled wolverine maternal habitat open to OSV travel. Alternative 6 Modified reduces potential effects to wolverine maternal habitat from OSVs as compared to Alternative 1. Although there could be small localized effects, the proposed OSV travel on the BDNF would not be a threat to the wolverine population.

Big Hole

Alternative 3 leaves the least amount of wolverine maternal habitat open to OSV travel at 10 percent, followed by Alternative 5 (35%), Alternative 2 (24%), and then Alternative 6 Modified (37%). Alternatives 1 and 4 leave the largest amount (61%) of modeled wolverine maternal habitat open to OSV travel. Alternative 6 Modified reduces potential effects to wolverine maternal habitat from OSVs as compared to Alternative 1. Although there could be small localized effects, the proposed OSV travel in the Big Hole Landscape would not be a threat to the wolverine population.

Boulder River

All of the wolverine maternal habitat would remain open to OSV travel in all alternatives. There could be potential effects to wolverine habitat in all alternatives. Although there could be small localized effects, the proposed OSV travel in the Boulder River Landscape would not be a threat to the wolverine population.

Clark Fork Flint

Alternative 3 leaves the least amount of wolverine maternal habitat open to OSV travel at 52 percent, followed by Alternative 5 (71%), Alternative 6 Modified (73%), and then Alternative 2 (89%). Alternatives 1 and 4 leave the largest amount (93%) of modeled wolverine maternal habitat open to OSV travel. Alternative 6 Modified reduces potential effects to wolverine maternal habitat from OSVs as compared to Alternative 1. Although there could be small

localized effects, the proposed OSV travel in the Clark Fork Flint Landscape would not be a threat to the wolverine population.

Gravelly

Alternative 3 leaves the least amount of wolverine maternal habitat open to OSV travel at 8 percent, followed by Alternative 5 (21%), Alternative 6 Modified (25%), and then Alternative 2 (65%). Alternatives 1 and 4 leave the largest amount (75%) of modeled wolverine maternal habitat open to OSV travel. Alternative 6 Modified reduces potential effects to wolverine maternal habitat from OSVs as compared to Alternative 1. Although there could be small localized effects, the proposed OSV travel in the Gravelly Landscape would not be a threat to the wolverine population.

Jefferson River

Alternative 6 Modified leaves the least amount of wolverine maternal habitat open to OSV travel at 1 percent, followed by Alternative 3 (2%), Alternative 5 (9%), and then Alternative 2 (13%). Alternatives 1 and 4 leave all of the modeled wolverine maternal habitat open to OSV travel. Alternative 6 Modified reduces potential effects to wolverine maternal habitat from OSVs as compared to Alternative 1. Although there could be small localized effects, the proposed OSV travel in the Jefferson River Landscape would not be a threat to the wolverine population.

Lima Tendoy

Alternative 3 and Alternative 6 Modified leave the least amount of wolverine maternal habitat open to OSV travel at 61 percent. Alternatives 1, 2, 4 and 5 leave the largest amount (64%) of modeled wolverine maternal habitat open to OSV travel. Alternative 6 Modified reduces potential effects to wolverine maternal habitat from OSVs as compared to Alternative 1. Although there could be small localized effects, the proposed OSV travel in the Lima Tendoy Landscape would not be a threat to the wolverine population.

Madison

Alternative 3 and Alternative 5 leave the least amount of wolverine maternal habitat open to OSV travel at 1 percent, followed by Alternative 6 Modified (3%), and then Alternative 2 (4%). Alternatives 1 and 4 leave the largest amount (6%) of modeled wolverine maternal habitat open to OSV travel. Alternative 6 Modified reduces potential effects to wolverine maternal habitat from OSVs as compared to Alternative 1. Although there are areas outside of wilderness where OSV travel is allowed, according to both recreation specialists on the Forests and the local MFWP biologist (Pers. com. 2016), there is no OSV travel in this area. No effects from OSV travel on wolverine denning habitat in this Landscape are expected.

Pioneer

Alternative 3 leaves the least amount of wolverine maternal habitat open to OSV travel at 43 percent, followed by Alternative 5 and Alternative 6 Modified (44%), and then Alternative 2 (49%). Alternatives 1 and 4 leave almost all (99%) of the modeled wolverine maternal habitat

open to OSV travel. Alternative 6 Modified reduces potential effects to wolverine maternal habitat from OSVs as compared to Alternative 1. Although there could be small localized effects, the proposed OSV travel in the Pioneer Landscape would not be a threat to the wolverine population.

Tobacco Root

Alternative 3 leaves the least amount of wolverine maternal habitat open to OSV travel at 33 percent, followed by Alternative 5 (42%), and then Alternative 6 Modified (48). Alternatives 1, 2 and 4 leave the largest amount (91%) of modeled wolverine maternal habitat open to OSV travel. Alternative 6 Modified reduces potential effects to wolverine maternal habitat from OSVs as compared to Alternative 1. Although there could be small localized effects, the proposed OSV travel in the Tobacco Root Landscape would not be a threat to the wolverine population.

Upper Clark Fork

There have never been any wolverine sightings in this landscape and there are no acres of wolverine maternal habitat modeled in this landscape therefore there would be no effects to this habitat type from OSV travel.

Upper Rock Creek

Alternative 6 Modified leaves the least amount of wolverine maternal habitat open to OSV travel at 20 percent, followed by Alternative 3 (43%). Alternatives 1, 2, 4 and 5 the most (51%) of the modeled wolverine maternal habitat open to OSV travel. Alternative 6 Modified reduces potential effects to wolverine maternal habitat from OSVs as compared to Alternative 1. Although there could be small localized effects, the proposed OSV travel in the Upper Rock Creek Landscape would not be a threat to the wolverine population.

Summary Statement

Overall, Alternative 3 would leave the least amount of wolverine maternal habitat open to OSV travel, followed by Alternative 6 Modified and Alternative 5. Alternative 6 Modified would in all Landscapes, except that Boulder River, reduce potential effects to wolverine maternal habitat from OSV travel. In all alternatives, winter motorized travel would be allowed within some of the wolverine maternal habitat across the Forest and may cause disturbance effects to individual wolverines. However the proposed rule recognized that high recreational use may coincide with wolverine habitat in some areas, and that there may be some localized small-scale effects to wolverines in these areas. (USFWS, 2013d). Although the effects analysis using the Inman et al. 2013 model portraying wolverine maternal habitat shows potentially more modeled maternal habitat is open to OSV travel than the Heinemeyer et al. 2001, there is still no additional evidence that winter recreation, motorized or non-motorized, has negative effects on wolverines (pers. comm. Inman 2016). **Although there could be small localized effects, the proposed OSV travel on the BDNF would not jeopardize the wolverine population.**

Effects for Small Mammals

During the public comment period, there was a concern raised about the effects of OSV travel to small mammals. There are several studies showing, snow packing by snowmobile use reduces the insulating value of the snow (Webb and Wilshire 1983; Hammitt and Cole 1987:84–85 in Knight and Temple 1995). Oliff et al. (1999) stated, "Compaction of snowfields by snowmobiles alters the mild snow microenvironment, potentially affecting organisms that live within or beneath the snow by increasing temperature stress or restricting movement by compacting the air spaces between the snow and the ground. Winter mortality of small mammals is markedly increased under areas compacted by snowmobiles."

Potential effects to small mammals could be measured by the amount of the forest open and closed to OSV use. Tables 1-11 show the acres and percentage of the landscapes that are motorized and non-motorized in the DSEIS. That said, these figures greatly overestimate the amount of the BDNF that is actually utilized by OSVs. The DSEIS on page 23 explains that, "…the majority of winter use is concentrated around developed sites and along roads, where many roads are managed as snowmobile or ski routes." It also explains on page 23-24 that not all acres classified as open are useable by OSVs. A more accurate representation of where potential effects to small mammals are possible is in Figure 9; the OSV use patterns map as identified by Forest recreation specialists. Table 12 displays the percent use by landscape, based on these maps. In general, over the snow cross country travel would affect small mammals more than groomed routes as these are generally on roads which provide low quality subnivean environments due to the absence of access sites for burrows and runways provided by vegetation and debris.

Based on the OSV use maps under Alternative 1, the Big Hole and the Pioneer Landscapes are where there is the highest potential for negative effects to small mammals as both Landscapes have a high amount of regular and intermittent cross country OSV travel. Percent use for these two Landscapes, including both cross country and routes, is 73 percent and 70 percent respectively. Forestwide, only 43 percent is utilized regularly/intermittently; including routes and cross country. Alternative 6 Modified reduces effects to small mammals by reducing this regular and intermediate use on both routes and cross country to 60 percent for the Big Hole and 62 percent for the Pioneer Landscapes. Forestwide, Alternative 6 Modified reduces effects to small mammals by reducing this regular and intermediate use on both routes and cross country to 29 percent.

Motor Vehicle Use and Existing or Proposed Recreational Uses of National Forest System Lands or Neighboring Federal Lands

Effects Common to All Alternatives and All Landscapes

Visitation is expected to grow by 10% and would likely create an increased use in existing facilities, such as Georgetown Lake, Discovery Basin, Maverick Mountain and sites along Pioneer Mountains Scenic Byway, and highway corridors.

The two developed ski areas on the BDNF, Discovery Basin and Maverick Mountain, are closed to OSV use in all alternatives, and thus there are no conflicts in any alternative. Existing cross-

country ski areas and trails would be retained under all alternatives. Adjacent areas offering winter recreation opportunities include Big Hole Battlefield National Park, Mount Haggin State Wildlife Management Area, Mount Haggin Cross-Country Ski Trails, snowmobile routes with parking, Fleecer Wildlife Management Area, BLM lands and Lost Trail Winter Sports (Ski) Area. All alternatives are consistent with adjacent management. OSV use in any alternative would not substantially interfere with the nature and purposes of the Continental Divide National Scenic Trail (Forest Service Manual 2353.42)

The 2009 FEIS provides information on motorized and non-motorized recreation opportunities, as well as winter recreation settings and opportunities (2009 FEIS pp 359-361 and 364-366). For each Landscape, the alternatives result in a mix of recreation settings to provide quiet, non-motorized settings, remote and challenging motorized settings and more developed settings.

All action alternatives also allocate additional quiet, non-motorized opportunities. This would result in a reduction to motorized settings in the winter. Winter visits to the two portions of designated Wilderness may increase, but current winter use in Wilderness is low and the increase is not expected to affect opportunities for solitude. Effects to the more developed settings (roaded natural and rural settings) would not be significant.

Balance of Recreation Settings and Opportunities

Acres allocated to winter non-motorized or to winter motorized settings is used in showing the balance of settings and opportunities provided. Alternative 1 (no action) provides the most acres for motorized uses and activities. Alternative 4 makes only slight alterations to existing settings, with the lowest reduction in motorized settings. In response to those concerned about protecting wilderness values and other qualities provided by allocations for quiet (non-motorized) recreation settings, Alternative 3 allocates the most acres for non-motorized use. Remaining action alternatives (2, 5, and 6) changes would result in a reduction of motorized recreation opportunities and an increase in non-motorized settings and recommended Wilderness.

Under all alternatives, a range of motorized and non-motorized recreation settings and opportunities will be provided. Differences between alternatives are largely in how much of the forest is allocated for the quiet, non-motorized settings and how much of the forest is allocated for the motorized uses and activities. The key issue for winter recreation is where and how many acres are allocated and managed for winter motorized and non-motorized opportunities.

Table 32 displays acres allocated to motorized and non-motorized winter recreation on the entire BDNF when the Forest Plan was approved in 2009. Table 1 through Table 11 display acres allocated to winter motorized and non-motorized recreation by landscape.

Table 32: Summary of Winter Recreation Allocations by Alternative

Alternative	Motorized (acres)	Non-Motorized (acres)
1	2,863,412	526,537
2	2,643,949	746,000
3	1,849,420	1,540,529
4	2,865,644	524,304
5	2,129,757	1,260,191
6 Modified	2,053,396	1,336,553

Motorized Recreation Settings and Opportunities

The opportunities available for recreation with OSVs are shown by the number of acres open to over-snow travel. Both groomed routes and backcountry use areas are desired by snowmobilers to accommodate varying abilities of riders. The type, amount and location of OSV use areas influence recreation opportunities and the quality of the recreation experience.

Alternatives 1 and 4 are the most favorable for providing winter motorized opportunities because most existing opportunities would remain available. Under Alternative 1 the vast majority of the forest remains available for snowmobile and other winter motorized use. Restrictions to motorized use only occur in designated Wilderness and small portions of winter range. Alternative 4 would result in a small increase to current motorized acres open for winter use. Changes are insignificant and would likely not result in changes to motorized winter use forestwide.

Alternative 2 decreases motorized winter allocations by approximately 220,000 acres. Although these reductions would displace some use, the area proposed for motorized use would be adequate to meet current and anticipated demand for motorized winter opportunities. By closing recommended Wilderness yearlong and Burton Park Alternative 2 could be considered the middle alternative with regard to motorized opportunities because it would result in the closure of some areas and routes, but not as many as the Alternative 3 , 5, or 6 modified.

Alternative 3 would result in the largest reduction in winter motorized uses largely due the amount of recommended wilderness proposed and the closure of these areas to motorized activities. Additional restrictions would result in more concentrated use in areas open to motorized use but would likely accommodate existing and anticipated demands.

Alternative 5 would decrease existing motorized winter areas. Recommended wildernesses would be closed to motorized travel. Although these reductions would displace some use, over 2 million acres would be adequate to meet current and anticipated demand for motorized winter opportunities. Alternative 6 Modified would also provide over 2 million acres allocated for motorized use, which would meet both existing and anticipated demands.

Non-motorized Recreation Settings and Opportunities

Opportunities for non-motorized recreation in winter (such as Nordic and backcountry skiing) are shown by the number of acres closed to motorized over-snow travel. Although non-motorized recreation does occur in areas of motorized recreation, numerous studies indicate this is less than ideal for several reasons. Non-motorized recreationists consistently refer to the importance of solitude for the enjoyment of their activities, as well as the absence of noise and fumes generated from motorized vehicles. However, during the comment period for the Draft SEIS, we received comments supporting OSV use by non-motorized users who prefer to use packed OSV trail so they can travel further than if the OSV tracks did not exist. Other reviewers commented that they used OSVs, not for purely a recreation experience, but as a tool so they could participate in other non-motorized recreation activities such as ice fishing at mountain lakes, trapping, winter camping, winter mountaineering and back country cabin use.

For backcountry skiers, the primary reason both uses don't mix is the availability of untracked powder. Since snow machines have fast access to untracked powder, areas become overrun with tracks by early morning; backcountry skiers cannot access and ski the areas before the snow has been tracked. However, during the comment period for the Draft SEIS, we received numerous comments from back country skiers supporting OSV use because they use snowmobiles to access non-motorized areas located some distance from a plowed parking area. Some of these back country users indicated without OSV access, they could not get to their preferred back country, deep snow areas during the winter to begin their preferred recreation experience.

Alternatives 1 and 4 would continue to provide non-motorized settings where they exist. In Alternative 1 no additional areas for non-motorized use are allocated. Alternative 4 would result in a small reduction to current non-motorized acres for winter use.

Alternative 2 increases non-motorized winter allocations by approximately 220,000 acres. Alternative 2 would increase non-motorized areas by closing the areas recommended for Wilderness to motorized uses yearlong and by restricting motorized winter activities in some specific areas not closed in Alternative 1.

Alternative 3 would provide the largest acreage of non-motorized allocations in winter. This is largely due the amount of recommended wilderness proposed and the closure of these areas to motorized activities.

Alternative 5 would more than double the current amount of acres allocated for non-motorized winter uses. Recommended wildernesses would be closed to motorized travel and provide additional opportunities for quiet winter recreation. Alternative 6 Modified would result in slightly more acres allocated for quiet, non-motorized winter use than alternative 5, but less than that proposed in alternative 3. Alternative 6 Modified provides non-motorized allocations near conveniently located staging areas that provide quick and easy vehicle access to winter day use. This alternative also accommodates opportunities for the hardiest winter recreationists seeking longer trips and non-motorized winter camping. Alternatives 5 and 6 have fewer acres of non-motorized allocation than Alternative 3 but more than Alternatives 1 and 2. Alternatives 5 and 6 provide non-motorized areas where undeveloped qualities are

present and are in addition to Wilderness and recommended wilderness.

Effects on Winter Recreation from Wilderness Recommendations

Areas being proposed as recommended wilderness would increase the protection of backcountry recreation opportunities with solitude, challenge and a natural appearing setting. In alternatives 1 and 4, current opportunities would not change. Under all action alternatives (except 4), non-motorized opportunities would increase and motorized opportunities would decrease. Alternative 3 would result in the most significant shift from motorized to non-motorized settings. Alternative 2, 5 and 6 wilderness recommendations would also result in increases to nom-motorized opportunities.

Use Conflicts

Both motorized and non-motorized winter recreationists use many of the same access points. While the majority of both user groups are generally compatible, there are some conflicts of uses. Non-motorized users utilize a much smaller area and travel a shorter distance from their access points, whereas motorized users can travel more than 50 miles per visit. Motorized users may feel that non-motorized users have the entire Forest to recreate on, while they are regulated by area. Non-motorized users may feel that there are fewer areas accessible to them, and that the effects of exhaust smells, noise, loss of solitude, and safety concerns impact their experience. Both viewpoints can lead to use conflicts.

Potential conflict between recreation uses can be assessed by considering recreation demand and the balance of recreation settings and opportunities. The 2009 FEIS completed demand calculations using the process outlined in the ROS Users Guide and concluded that forest recreation settings currently meet demands for winter uses (2009 FEIS pg. 342). This conclusion is further supported by comments from those interviewed in the three rounds of NVUM surveys (2001, 2005, and 2010); nearly all visitors indicated they either did not sense crowding or “hardly anyone was there”. No conflicts were noted during the extended interviews (NVUM 2005; NVUM 2010). This would not change with each alternative.

There are differences between alternatives from changing the amount of areas open to use (Figure 3 thru Figure 8 and Table 1 through Table 11) in terms of the potential for conflict. All alternatives provide, to a widely varying degree, opportunities for non-motorized over snow recreation away from motorized over snow settings. All recognize the importance of existing snowmobile and cross-country ski groomed routes. None of the alternatives add to or subtract from the current groomed mileage of snowmobile or cross country ski trails, however acres of motorized and non-motorized over snow settings vary by alternative. Conflict of use and safety issues between motorized and non-motorized winter recreationists could occur under all alternatives in all landscapes if users choose to recreate in the same area. We are unable to identify any discernible potential conflicts specific to any of the landscapes.

During the Draft SEIS comment period, numerous recreation users of the BDNF commented they have noted a lack of conflict between motorized and non-motorized recreationists. Many of these reviewers also noted cooperation between motorized and non-motorized recreationists. In addition, several recreationists, who prefer non-motorized forms of winter

recreation, specifically requested areas remain open to OSV use (including some areas currently receiving little use) so they may use OSVs to reach their preferred remote, backcountry areas before beginning their non-motorized experience. Many of the users identified concerns that they preferred OSV access through areas with relatively light snow so they could access deep snow in non-motorized areas. Please review Appendix G for specific comments from these recreation users.

Literature Review Summary Regarding Use Conflicts

Recreation research on the topic of use conflict is broad, with a typical finding that use conflicts are almost always one-way. For example, skiers perceive snowmobilers interfering with their activity, but snowmobilers are generally indifferent to skiers (Jackson and Wong 1982). Conflict has been variously described by social scientists, but generally is attributed to goal interference attributed to others behavior (Jacob and Schreyer 1980).

Conflicts among uses are not about physical confrontations between users in the field; it is more about personal values and perceptions of motorized versus non-motorized uses. Research (Williams 1993) shows that the following factors influence the likelihood of conflict: activity style, resource specificity, mode of experience, and tolerance for lifestyle diversity. Activity style refers to the significance the person attaches to the activity. Conflict is much more likely to occur if the activity is an integral part of the person's lifestyle rather than an occasional activity. Resource specificity refers to the significance a person attaches to using a specific resource. Conflict is more likely to occur when the person has a special relationship with a place and perceives others are disrupting the traditional uses of the place or devaluing its meaning. Mode of experience refers to the way in which the environment is perceived. Conflict is more likely to occur when the person perceives the environment as part of the experience rather than as a backdrop for the experience. The last factor is tolerance for lifestyle. Conflict is more likely to occur when the user has a higher tendency to reject lifestyles that are different than one's own. Examples include a preference for mechanized versus non-mechanized or consumptive versus non-consumptive activities.

Conflict over the use of NFS lands arise from differing opinions about appropriate uses on these lands. It is about forest users and their personal values, and the fact that personal values shape preferences for which activities are appropriate and desirable on public lands. Based on these preferences, some forest visitors may tend to feel that their experience is disrupted by activities that they do not feel are appropriate or desirable. Conversely, other forest visitors may feel offended or defensive when the activities they enjoy are identified as inappropriate or undesirable by others. The conflict related to travel management planning is most often characterized as motorized uses versus non-motorized uses.

Despite monitoring, there's no information indicating use conflicts other than the few areas noted below.

Potential OSV Use Conflicts

Untracked snow is important to both motorized and non-motorized over snow recreationists, but this snow is much more easily consumed by motorized recreation. A primary sought-after

experience in backcountry skiing is skiing untracked snow. Because of the difference between what skiers and other non-motorized users and snowmobilers' desire in their activities, conflicts can increase as OSV use increases. Shared-use philosophy can equate to a single use as the snowmobile overwhelms and displaces non-motorized use. Some of the use conflict between motorized and non-motorized OSV occurs because both groups enjoy recreating in untracked snow. The backcountry or Nordic skier enjoys the feeling of getting away from civilization. Noise and fumes created from snowmobiles disturb a skier's full enjoyment of the sport.

Safety becomes a concern when snowmobiles travel at high speeds in areas where there are skiers. In many conditions, such as deep snow, varied terrain or during snowfall, it is difficult for a snowmobiler to see a skier until almost directly upon them. Large tracks created in the snow by snowmobiles are difficult for skiers to maneuver around and through.

Multiple use of both non-motorized and motorized use on the same acres eliminates most opportunities for solitude, including peace and quiet. Safety may be compromised when high speed snowmobiles mix with skiers and snowshoers on the same route. Although all of the BDNF is available for non-motorized use, conflict of use may occur is all alternatives.

Specific Areas of Conflict

One area of historic conflict is Mount Jefferson (within the Gravelly Landscape). The boundary line between snowmobile use and closure was drawn in the Mount Jefferson area in 2001 to provide greater protection for wolverine habitat and other wilderness values in the Hellroaring Creek area. Winter use in Mount Jefferson has been monitored every year since 2001, documenting motorized intrusions into the closed areas each successive year. Montana Wilderness Association, Greater Yellowstone Coalition, and Winter Wildlands Alliance have provided annual documentation of the snowmobile incursions, and the impacts to primitive recreation, solitude and wilderness suitability. Illegal motorized use impacts the opportunities for solitude and primitive recreation. In addition, back country skiing opportunities associated with the ski hut outfitter are impacted by illegal snowmobile incursions into the closed area and Wilderness Study Area. Illegal intrusions onto the closed BLM Centennial Wilderness Study Area impact the wilderness suitability of the Wilderness Study Area. Mount Jefferson is an example where illegal use has created the use conflict.

The *2009 Record of Decision (ROD) for the Beaverhead-Deerlodge National Forest Plan* recommended the north portion of the Mt. Jefferson/Hellroaring Creek area in the Centennial Mountains as wilderness and left the south portion open to snowmobiling. The decision provides access for snowmobilers on the Idaho side of Mt. Jefferson while providing greater protection for wolverine habitat and other wilderness values in Hellroaring Creek. The boundary line between winter snowmobiling in Mt Jefferson Management Area and the snowmobiling closure for Centennial Recommended Wilderness Management area is drawn along the 2001 wolverine habitat closure. The Record of Decision states on page 21, "the combination of uses allowed on Mt Jefferson under the Forest Plan represents a management challenge, because the boundary between the motorized and non-motorized use areas does not follow an effective topographical barrier to illegal motorized entry. The success of this compromise decision relies heavily on voluntary compliance with recommended wilderness boundaries by over-snow vehicle users. The Forest Monitoring Plan specifically spells out

monitoring requirements that address compliance with restrictions on motorized use in Mt. Jefferson. If monitoring reveals that non-compliance is an issue, the decision to allow snowmobiling on Mt. Jefferson will be re-evaluated." The 2009 ROD recognizes that the success of the compromise decision relies heavily on voluntary compliance with recommended wilderness area boundaries by over-snow vehicle users.

Monitoring of the Mt. Jefferson area is ongoing with snow ranger patrols and remote cameras. During snow seasons from 2009-2015, Forest Service and BLM personnel conducted 45 days of on-the-ground monitoring in the Mount Jefferson area. Evidence of motorized incursions into the recommended wilderness area was observed about 60% of the time. During the 2014/2015 season, local community leaders and stakeholders in Montana and Idaho partnered with the Forest to increase patrols, education, and enforcement efforts (described below). These efforts were in place for the 2015/2016 OSV season, and fewer observations of incursions make it hopeful that the cooperative efforts are having an effect in reducing the number of incursions.

Table 33– OSV incursions into Mt. Jefferson closure area.

Year	Cole Creek Area	Hellroaring Closure (Forest Service RWA)	BLM – Wilderness Study Area	TOTAL
2009	0	12	19	31
2010	6	18	14	38
2011	0	21	3	24
2012	0	21	5	26
2013	10	51	11	72
2014	0	39	0	39
2015*	Not Monitored	10 (Approx.)	0	10
2016**	Not monitored	10 (Approx.)	2	12

*Limited Monitoring

**All 2016 monitoring not yet reported.

A letter was sent to over 750 Forest Plan participants January 15, 2013 describing results from monitoring in 2010, 2011, and 2012. The letter describes intrusions into the closed area. Despite clear boundary marking, intrusions are occurring, as evidenced by tracks and observations. The letter concluded by stating, "We intend to continue with monitoring the area this year. Based on results of the monitoring, I will re-evaluate the decision to allow snowmobiling on Mt. Jefferson in 2014."

It was decided to continue monitoring in 2014. This decision was based on monitoring results, consideration of new public education efforts, and increased enforcement efforts. In an effort to be more effective in reducing intrusions into the recommended wilderness area, Madison Ranger District, Ashton-Island Park Ranger District, Fremont County Idaho, Idaho and Montana State Snowmobile Associations, and snowmobile volunteers of Fremont County began working on a plan last winter (2014/2015) to get snow rangers in place for the winter of 2015/2016 to patrol the Mt. Jefferson motorized – non-motorized boundary through the season. Funding has been secured to hire snow rangers for the next two seasons, a local Arctic Cat dealer will be providing the use of two snowmobiles, and housing for rangers is available at the Ashton-Island Park Ranger District. It is hoped that with this partnership and the added aspect of a consistent education and enforcement presence, compliance will substantially improve.

In detail, the efforts for the 2015/2016 season include:

- Fremont County and the Idaho State Snowmobile Association has expanded public education efforts and community outreach - placing posters, signs, and brochures at area businesses and around communities, signing at parking lot trailheads and along snowmobile travel routes. Individuals who rent snow machines in the area are asked to read and sign a form acknowledging restrictions associated with the Mt. Jefferson area. Public service radio spots are aired with information about Mt. Jefferson. Volunteers help maintain signs along the motorized – non-motorized boundary. In December 2015 all cooperators met with snowmobile and other vendors from West Yellowstone and the Ashton-Island Park area to share information on Mt. Jefferson issues with the objective of garnering their support to inform and educate their customers.
- Elected officials from Idaho and Montana have been interested and engaged in discussions about the area from the beginning. Staffers representing Senator Risch, Congressman Simpson, and Senator Crapo from Idaho were briefed on current actions and plans, and on October 19, 2015, attended a meeting of the Fremont County Snowmobile Advisory Committee to hear from the Forest Service and partners directly about the snow ranger plan for the upcoming season.
- In an effort to substantially increase compliance and reduce incursions into the non-motorized area, Madison and Ashton-Island Park Ranger Districts, Fremont County Idaho, Idaho and Montana State Snowmobile Associations, and snowmobile volunteers of Fremont County have pooled funding and equipment resources to be able to have snow rangers in place to patrol the Mt. Jefferson boundary through the 2015/2016 season. This includes a Collection Agreement between Fremont County, Idaho and the Forest Service. Funding was secured to hire snow rangers for two seasons, a local Arctic Cat dealer will be providing the use of two snowmobiles, and housing for snow rangers is available at the Ashton-Island Park Ranger District. An important aspect of this enforcement effort will be to follow up on citations.
- The Forest Service is working with Forest Service Regional Law Enforcement representative and the Assistant US Attorney to support citations, such as mandatory court appearance, so that they are meaningful and help the Forest Service be successful in managing this area.
- In 2016, monitoring through March 2016 was conducted on January 3-10, 14-17, 18-20, 23-24; February 4-7, 11-15, 26; March 5, 12-13, 17-18, and 19-20. The results of this monitoring showed that of the twelve monitoring visits, two showed evidence of snowmobile incursions (tracks) into closed Agriculture Research Station lands, one showed evidence of snowmobile incursions into the BLM WSA, and six showed evidence of snowmobile incursions in the Hellroaring area (camera photos and evidence of tracks). Reports are provided in the project file. During these monitoring trips the snow rangers also enhanced signing of the boundary by placing new signs and sign boards, provided closure handouts, identified the boundary by orange flagging, and changed sign locations to make the existing signs more effective. The Forest Service also received a report of monitoring from Winter Wildlands Alliance titled "*March 18-20, 2016 Winter Wildlands Alliance Monitoring Observations*" which stated they "did not see evidence of major motorized intrusion into closure area."

Another area of potential conflict has been Chief Joseph Pass (within the Big Hole Landscape). The cross-country ski trailhead and parking area is located at Chief Joseph Pass and a snowmobile parking lot is located off of Highway 93 near Forest Service road 1260. There has been a long-standing verbal agreement between the Bitterroot Cross-Country Ski Club and the Bitterroot Ridge Runners to keep motorized use off the groomed cross-country ski trails. Chief Joseph is an example where cooperation has resulted in precluding use conflict.

Indicator/Measure to Use

Percent of the area allocated and managed for winter motorized and non-motorized opportunities

Common to All Landscapes

Alternative 1 provides continuation of existing uses in present locations in all landscapes until they are restricted by further planning. Under all alternatives recreation visitation is expected to increase in winter season. Non-motorized winter areas include the Anaconda-Pintler Wilderness, part of the Mount Haggin Area, Cottonwood and winter non-motorized areas that provide elk winter range.

Snowmobile use is expected to meet or exceed the average increase expected forestwide in areas of accessible terrain and proximity to population areas like Butte and Bozeman. Use is expected to be most noticeable along the Pioneer Mountains Scenic Byway due to the supporting infrastructure and grooming.

Big Hole Landscape

Alternative 2 (2009 FEIS pg. 370) allocates 363,680 acres (68%) to winter motorized and 167,679 acres (32%) to non-motorized in winter. Motorized uses would be prohibited yearlong in this alternative in the Anaconda Pinter Wilderness and its Recommended Additions, and in the West Big Hole Recommended Wilderness. Presently used drainages which would be closed to snowmobiling include Moose, Rock, Rock Island, Little Lake, Miner, Hanby, Berry, Pioneer, and Janke Creeks, totaling about 2/3 of the existing West Big Hole proposed wilderness. The portion not recommended for Wilderness which would be left open for motorized uses in winter include Big Lake, Dark Horse, and Slagamelt drainages in winter. People who use these areas in winter would be displaced to other areas for summer and winter activities. Additionally, the Anderson Mountain area would be non-motorized in winter.

Alternative 3 (2009 FEIS pg. 371) allocates 294,070 acres (55%) to winter motorized and 237,289 acres (45%) to non-motorized in winter. The alternative would close the most area to motorized uses in winter. In winter the designated and recommended wilderness and part of the Pintler Face are non-motorized. The Alternative also provides non-motorized opportunities in the Anderson Mountain area in winter, and the area between Trail Creek and Highway 43, and Pintler face areas to snowmobiles. These closures would displace snowmobilers who use them, with the West Big Hole and Tie Johnson areas important to the largest number of users. Enforcement (manageability) would be difficult due to routes and even play areas crossing boundaries which are not apparent on the ground.

Alternative 4 (2009 FEIS pg. 371) allocates 451,433 acres (85%) to winter motorized and 79,926 acres (15%) to non-motorized in winter. The alternative would have effects similar to Alternative 1.

Alternative 5 (2009 FEIS pg. 372) allocates 352,465 acres (66%) to winter motorized and 178,894 acres (34%) to non-motorized in winter. The alternative would include two large areas of winter non-motorized. Non-motorized areas would be designated in the Anderson Mountain area. The Anaconda-Pintler Wilderness would have an expanded Hellroaring Addition as well as the Storm Lake Addition, and additional non-motorized areas along the southern edge of the Wilderness. Alternative 5 balances the approach to managing the West Big Hole area.

Under Alternative 6 Modified, about half of the area proposed for wilderness in the existing plan would be closed to snowmobiles and other winter motorized use. In winter snowmobilers would likely find adequate areas for their sport; however, some high-marking and deep snow opportunities would be lost, particularly in the West Big Hole and Anderson Mountain areas. Alternative 6 Modified allocates 353,772 acres (67%) to winter motorized and 177,587 acres (33%) to non-motorized in winter. The alternative includes two large areas of winter non-motorized. These allocations would reduce winter motorized opportunities there by about half. Non-motorized areas would be designated in the Anderson Mountain area. The Anaconda-Pintler Wilderness would have an expanded Hellroaring Addition as well as the Storm Lake Addition, and additional non-motorized areas along the southern edge of the Wilderness. Alternative 6 balances the approach to managing the West Big Hole area.

Boulder River Landscape

Alternative 2 (2009 FEIS pg. 375) allocates 189,132 acres (93%) to winter motorized and 14,159 acres (7%) to non-motorized in winter. The alternative would provide continued non-motorized opportunities and snowmobiles would only be allowed on designated routes in the Cottonwood Management Area. Present winter snowmobile play areas near Cottonwood Lake would no longer be available to visitors who use the area. Non-motorized winter range would be retained.

Effects of the alternatives analyzed in the 2009 FEIS, including an exception to a winter, non-motorized allocation for the Electric Peak Trail (#7065), are described in the 2009 FEIS on pages 374-376. Comments on the 2009 FEIS from MFWP and the Montana Wilderness Association specifically expressed support for the exception to the winter motorized travel not allowed restriction in the Electric Peak MA, retaining the snowmobile route. There have not been any reported public safety issues, conflicts, accidents or injuries associated with winter motorized use on Trail #7065.

Alternative 3 (2009 FEIS pg. 375) allocates 143,581 acres (71%) to winter motorized and 59,710 acres (29%) to non-motorized in winter. This alternative allocates a recommended Wilderness, Electric Peak, which includes the Cottonwood area and larger non-motorized areas around it in winter. Additional non-motorized would be allocated in winter throughout the landscape.

Alternative 4 (2009 FEIS pg. 375) allocates 189,132 acres (93%) to winter motorized and 14,159 acres (7%) to non-motorized in winter. The alternative would have effects similar to Alternative 1.

Alternative 5 (2009 FEIS pg. 375) allocates 145,079 acres (71%) to winter motorized and 58,213 acres (29%) to non-motorized in winter. This alternative would have effects the same as Alternative 3 in winter. Though not all of these areas provide opportunities now, motorized recreationists would be displaced under Alternative 6 Modified. About half of the areas now open to snowmobiles would be closed. Opportunities for cross-country skiing and snow-shoeing would improve slightly, though vehicle access to non-motorized areas would limit their use.

Alternative 6 Modified allocates 132,448 acres (65%) to winter motorized and 70,844 acres (35%) to non-motorized in winter. The alternative would have similar effects as Alternative 5.

Clark Fork Flint Landscape

Alternative 2 (2009 FEIS pg. 377) allocates 337,582 acres (91%) to winter motorized and 31,680 acres (9%) to non-motorized in winter. The alternative would be the same as Alternative 1 in winter.

Alternative 3 (2009 FEIS pg. 377) allocates 265,423 acres (72%) to winter motorized and 103,839 acres (28%) to non-motorized in winter. The alternative would increase non-motorized opportunities, mostly by closing existing areas with routes to motorized use in winter. Yearlong restrictions would result from wilderness recommendations in the upper Flint Range and near the Anaconda Pintler Wilderness. Additional snowmobile closures would include the uplands of the Flints, Lost Creek, Harvey Creek, and additions to the Anaconda-Pintler Wilderness. Lost snowmobile opportunities may result in a decline in winter visitation to the Georgetown Lake area and towns around the Flint Range where snowmobiling is popular.

Alternative 4 (2009 FEIS pg. 378) allocates 341,516 acres (92%) to winter motorized and 27,746 acres (8%) to non-motorized in winter. The alternative would have effects similar to Alternative 2, including additional non-motorized areas allocated in winter.

Under Alternative 5 (2009 FEIS pg. 378) allocates 289,242 acres (78%) to winter motorized and 80,000 acres (22%) to non-motorized in winter. Most snowmobile opportunities east of the Deer Lodge Valley would continue, but some connecting activities in the Boulder River Landscape, particularly the Cottonwood Lake Trail and play area would be lost. A large area, presently seldom used due to steep terrain, would be designated non-motorized in the Harvey Creek area and several islands of non-motorized would be designated in the Flint uplands.

Winter recreation uses would be balanced, and no conflicts are anticipated. Snowmobile opportunities east of the Deer Lodge Valley would continue, while acreage in the Harvey Creek area and several areas in the Flint uplands islands would be designated for winter non-motorized use. Alternative 6 Modified allocates 306,554 acres (83%) to winter motorized and 62,708 acres (17%) to non-motorized in winter. The alternative would have the same effects as described in Alternative 5. Winter motorized opportunities would be lost, and some users may be displaced from their favored recreation routes and sites.

Gravelly Landscape

Alternative 2 (2009 FEIS pg. 380) allocates 364,884 acres (78%) to winter motorized and 104,502 acres (22%) to non-motorized in winter. The alternative would have effects similar to Alternative 1. The Centennial Recommended Wilderness (Mount Jefferson) area would be non-

motorized yearlong. An area of winter non-motorized would be allocated along the Chain of Lakes to provide wildlife habitat and cross-country skiing. Most settings and opportunities, however, would change little over the life of the plan.

Action alternatives allocated additional quiet, non-motorized opportunities, resulting in a reduction to motorized settings in the winter. Antelope Basin Road 056 provides a connection between areas open to winter motorized use on the adjacent Caribou-Targhee National Forest. The road corridor is associated with residents, connects the same areas open for snowmobile use as the more popular staging areas around Henrys Lake. Winter motorized use of Road 056 was allowed prior to the Forest Plan Revision.

The 4.5 mile Antone Cabin Road 325 is open to motorized uses in the winter to provide access to the Antone Recreation Rental Cabin. Winter motorized use of the area has always been low, due to limited access and distance from a plowed parking area. Winter motorized use in the basin surrounding the Antone Cabin was allowed prior to the Forest Plan, as was use of this road. Action alternatives allocated additional quiet, non-motorized opportunities and a reduction to motorized settings in the winter.

Alternative 3 (2009 FEIS pg. 380) allocates 141,192 acres (30%) to winter motorized and 328,194 acres (70%) to non-motorized in winter. The alternative would provide recommended wilderness over a large part of the landscape. Additional non-motorized areas would also be allocated for winter. Snowmobiling is now popular through much of the range, and the closures could lead to crowding or displacement of those visitors. Cross-country ski opportunities would be available throughout the landscape, with vast quiet opportunity areas far exceeding predictable demand. Areas would also be available for long distance winter skiing and camping for the hardier visitors. This alternative closes the Mount Jefferson area.

Alternative 4 (2009 FEIS pg. 381) allocates 377,946 acres (81%) to winter motorized and 91,441 acres (19%) to non-motorized in winter. The alternative would be similar to Alternative 1.

Alternative 5 (2009 FEIS pg. 381) allocates 234,821 acres (50%) to winter motorized and 234,566 acres (50%) to non-motorized in winter. The alternative would have effects similar to Alternative 2, plus some additional recommended wilderness in the Snowcrest Mountains, where motorized opportunities would be lost on some short segments of roads and routes. This alternative closes the Mount Jefferson area.

Under Alternative 6 Modified large additional blocks of the landscape would be provided for non-motorized recreation, while the majority of existing marked snowmobile routes would be retained with restrictions reducing play area opportunities, assuring no conflicts. Alternative 6 Modified allocates 236,963 acres (50%) to winter motorized and 232,423 acres (50%) to non-motorized in winter. The alternative would have similar effects to recreation as those discussed under Alternative 5.

Actions associated with OSV use in the Mt Jefferson area - Monitoring of the Mt. Jefferson area is ongoing. During snow seasons from 2009-2015, Forest Service and BLM personnel conducted 45 days of on-the-ground monitoring in the Mount Jefferson area. Evidence of motorized incursions into the recommended wilderness was observed about 60% of the time, but there is a general downward trend in motorized incursion evidence through physical monitoring data

based on annual percentage of days where motorized incursions are noted. It is believed at this time that the presence of patrollers is having an effect in reducing the number of incursions.

A letter was sent to over 750 Forest Plan participants January 15, 2013 describing results from monitoring in 2010, 2011, and 2012. The letter describes intrusions into the closed area. Despite clear boundary marking, intrusions are occurring, as evidenced by tracks and observations. The letter concluded by stating, "We intend to continue with monitoring the area this year. Based on results of the monitoring, I will re-evaluate the decision to allow snowmobiling on Mt. Jefferson in 2014."

It was decided to continue monitoring in 2014. This decision was based on monitoring results, consideration of new public education efforts, and increased enforcement efforts. In an effort to be more effective in reducing intrusions into the recommended wilderness area, Madison Ranger District, Ashton-Island Park Ranger District, Fremont County Idaho, Idaho and Montana State Snowmobile Associations, and snowmobile volunteers of Fremont County began working on a plan last winter (2014/2015) to get snow rangers in place for the winter of 2015/2016 to patrol the Mt. Jefferson motorized – non-motorized boundary through the season. Funding has been secured to hire snow rangers for the next two seasons, a local Arctic Cat dealer will be providing the use of two snowmobiles, and housing for rangers is available at the Ashton-Island Park Ranger District. It is hoped that with this partnership and the added aspect of a consistent education and enforcement presence, compliance will substantially improve.

Jefferson River Landscape

Alternative 2 (2009 FEIS pg. 383) allocates 162,063 acres (85%) to winter motorized and 28,551 acres (15%) to non-motorized in winter. The alternative would have would result in increased non-motorized areas in the landscape.

Alternative 3 (2009 FEIS pg. 384) allocates 98,329 acres (52%) to winter motorized and 92,285 acres (48%) to non-motorized in winter. The alternative would increase non-motorized areas in this landscape in winter. The closures would reduce snowmobile play areas available in the Whitetail area, though much of the area closed is not easily used by snowmobiles due to terrain. Cross country ski opportunities could improve slightly in some places.

Alternative 4 (2009 FEIS pg. 384) allocates 190,611 acres to winter motorized and 3 acres to non-motorized in winter. The alternative would be similar to Alternative 1.

Alternative 5 (2009 FEIS pg. 384) allocates 99,525 acres (52%) to winter motorized and 91,088 acres (48%) to non-motorized in winter. The alternative would have effects similar to Alternative 3 in winter.

Alternative 6 Modified would reduce snowmobile play areas in the Whitetail area, but this area is not generally used. Cross country ski opportunities would be improved slightly in some places. Because these changes are slight for both motorized and non-motorized recreation uses, no conflicts are anticipated.

Alternative 6 Modified allocates 90,190 acres (47%) to winter motorized and 100,423 acres (53%) to non-motorized in winter. The alternative would restrict motorized travel to protect recommended wilderness and roadless values. Other than the effects specific to recommended

wilderness, this alternation would result in the same effects as those described in Alternative 5.

Lima Tendoy Landscape

Alternative 2 (2009 FEIS pg. 386) allocates 291,963 acres (79%) to winter motorized and 75,561 acres (21%) to non-motorized in winter. Recreation management and opportunities would be similar to Alternative 1.

Alternative 3 (2009 FEIS pg. 386) allocates 174,001 acres (47%) to winter motorized and 193,523 acres (53%) to non-motorized in winter. Changes would result in approximately half managed as winter non-motorized. The quantity and quality of motorized opportunities would be reduced.

Alternative 4 (2009 FEIS pg. 386) allocates 291,963 acres (79%) to winter motorized and 75,561 acres (21%) to non-motorized in winter. The alternative would be similar to Alternative 2.

Alternative 5 (2009 FEIS pg. 386) allocates 234,320 acres (64%) to winter motorized and 133,320 acres (36%) to non-motorized in winter. In this Alternative additional areas would be closed to snowmobiling in the Lima Peaks and Tendoy Mountains, but remaining opportunities should be adequate to meet snowmobiling demand.

Alternative 6 Modified allocates 202,401 acres (47%) to winter motorized and 165,123 acres (53%) to non-motorized in winter. Areas of Lima Peaks and Tendoy Mountains would be closed to snowmobiling, but remaining opportunities and access would be adequate to meet snowmobiling demand. The primary change in this Alternative is the addition of approximately 32,905 acres of recommended wilderness. This would result in a reduction in motorized opportunities. Other than the effects specific to recommended wilderness, this alternation would result in the same effects as those described in Alternative 5. No conflicts are anticipated.

Madison Landscape

Alternative 2 (2009 FEIS pg. 388) allocates 3,685 acres (3%) to winter motorized and 119,309 acres (97%) to non-motorized in winter. This alternative would be similar to Alternative 1 even though some parcels adjacent to private lands, already managed as non-motorized, would be managed as recommended wilderness.

Alternative 3 (2009 FEIS pg. 388) allocates 676 acres (1%) to winter motorized and 122,318 acres (99%) to non-motorized in winter. This would be similar to Alternative 2 except in McAtee Basin, where wilderness is recommended. The result would be a loss of snowmobile opportunities which provide a through route for Gallatin National Forest snowmobile routes.

Alternative 4 (2009 FEIS pg. 389) allocates 13,198 acres (11%) to winter motorized and 109,796 acres (89%) to non-motorized in winter. The alternative would be similar to Alternative 1.

Alternative 5 (2009 FEIS pg. 389) allocates 834 acres (1%) to winter motorized and 122,994 acres (99%) to non-motorized in winter. This alternative would be similar to Alternative 3 except the snowmobile route in McAtee Basin would be not be included in the recommended wilderness, and would remain open for snowmobile use.

Alternative 6 Modified (2009 FEIS pg. 389) allocates 2,730 acres (2%) to winter motorized and 120,264 acres (98%) to non-motorized in winter. This alternation would result in the same effects as those described in Alternative 5, with the exception of the McAtee Basin area. Instead of being proposed as recommended wilderness, it would have a non-motorized recreation setting allocation. Because the area is predominately non-motorized, no conflicts are projected.

Pioneer Landscape

Alternative 2 (2009 FEIS pg. 390) allocates 455,341 acres (79%) to winter motorized and 118,784 acres (21%) to non-motorized in winter. Areas open to motorized use in winter within the Torrey Mountain Recommended Wilderness would be closed. This change would result in a loss of high country snowmobile opportunities.

Alternative 3 (2009 FEIS pg. 390) allocates 392,952 acres (68%) to winter motorized and 181,173 acres (32%) to non-motorized in winter. This would be result in closures to motorized uses within the Torrey Mountain Recommended Wilderness and adjacent roadless areas. Motorized winter closures in the Torrey Mountain Recommended Wilderness and near Birch Creek may lead to increased snowmobile use the West Pioneer Wilderness Study Area. Opportunities for cross-country skiing or snow shoeing near Dillon and in quiet backcountry settings would increase.

Alternative 4 (2009 FEIS pg. 391) allocates 531,932 acres (93%) to winter motorized and 42,193 acres (7%) to non-motorized in winter. It would be similar to Alternative 1.

Alternative 5 (2009 FEIS pg. 391) allocates 424,093 acres (74%) to winter motorized and 150,032 acres (26%) to non-motorized in winter. This alternative would be similar to Alternative 2, with slightly less area in the Torrey Mountain Recommended Wilderness, but total non-motorized allocations over more area. Motorized opportunities would be lost, including longer snowmobile routes across the East Pioneers. Additional non-motorized winter opportunities would be provided in the East Pioneers, with vehicle access through Birch Creek and the Pioneer Mountains Scenic Byway.

Alternative 6 Modified (2009 FEIS pg. 391) allocates 424,492 acres (74%) to winter motorized and 149,633 acres (26%) to non-motorized in winter. This alternation would have similar effects to those described under Alternative 5. Portions of the East Pioneer area, recommended for Wilderness in Alternative 5, would be allocated as non-motorized recreation settings. While winter motorized use is expected to increase along the Byway, areas open to motorized use in winter within the Torrey Mountain Recommended Wilderness would allocated as non-motorized recreation settings. Conflict and/or crowding are unlikely as motorized use would simply shift.

Tobacco Root Landscape

Alternative 2 (2009 FEIS pg. 393) allocates 164,647 acres (95%) to winter motorized and 9,328 acres (5%) to non-motorized in winter. This alternative would have effects similar to Alternative 1.

Alternative 3 (2009 FEIS pg. 394) allocates 56,872 acres (33%) to winter motorized and 117,104

acres (67%) to non-motorized in winter. Alternative 3 changes would result in areas open to snowmobiles being lost, mostly on the north end of the range. Routes connecting to the south side of the range, however, would remain open to snowmobiles.

Alternative 4 (2009 FEIS pg. 394) allocates 164,647 acres (95%) to winter motorized and 9,328 acres (5%) to non-motorized in winter. The alternative would allocate exiting winter non-motorized management and be similar to Alternative 1.

Alternative 5 (2009 FEIS pg. 394) allocates 74,381 acres (43%) to winter motorized and 99,595 acres (57%) to non-motorized in winter. In this Alternative the change to winter opportunities from mostly open to snowmobiles to over half closed would displace some snowmobilers from the northern part of the range.

Alternative 6 Modified allocates 83,851 acres (48%) to winter motorized and 90,125 acres (52%) to non-motorized in winter. This alternation would have similar effects to those described under Alternative 5.

Upper Clark Fork Landscape

Alternative 2 (2009 FEIS pg. 396) allocates 72,033 acres (86%) to winter motorized and 11,285 acres (14%) to non-motorized in winter. This alternative would be similar to Alternative 1. Burton Park would be closed to motorized winter use, expanding cross-country ski and other quiet recreation opportunities near Butte. This may displace snowmobilers to other areas.

Alternative 3 (2009 FEIS pg. 396) allocates 59,616 acres (72%) to winter motorized and 23,701 acres (28%) to non-motorized in winter. In Alternative 3 some new snowmobile closures would take effect, but the landscape would remain a mix of motorized and non-motorized opportunities in winter, with heavy use from Butte and Anaconda residents.

Alternative 4 (2009 FEIS pg. 396) allocates 74,328 acres (89%) to winter motorized and 8,989 acres (11%) to non-motorized in winter. The alternative would be similar to Alternative 1.

Alternative 5 (2009 FEIS pg. 396) allocates 54,735 acres (66%) to winter motorized and 28,582 acres (34%) to non-motorized in winter. Alternative 5 is the highest percentage alternative for winter non-motorized areas. Several snowmobile routes would be open between non-motorized areas south of Butte, and lead to open areas beyond the closures.

Alternative 6 Modified allocates 55,542 acres (67%) to winter motorized and 27,776 acres (33%) to non-motorized in winter. This alternation would have similar effects to those described under Alternative 5.

Upper Rock Creek Landscape

Alternative 2 (2009 FEIS pg. 398) allocates 208,056 acres (76%) to winter motorized and 65,162 acres (24%) to non-motorized in winter. This alternative would continue existing management; Non-motorized areas would remain the same as in Alternative 1, where elk winter range and existing Wilderness are managed as non-motorized in winter. Recreation users are not expected to be affected.

Alternative 3 (2009 FEIS pg. 398) allocates 191,825 acres (70%) to winter motorized and 81,393

acres (30%) to non-motorized in winter. In Alternative 3 snowmobile opportunities would be reduced by area closures near Stoney Campground and near the wilderness study area.

Alternative 4 (2009 FEIS pg. 398) allocates 208,056 acres (76%) to winter motorized and 65,162 acres (24%) to non-motorized in winter. This alternative would be similar to Alternative 2 in terms of current condition for effects.

Alternative 5 (2009 FEIS pg. 398) allocates 189,381 acres (69%) to winter motorized and 83,837 acres (31%) to non-motorized in winter. Alternative 5 would be similar to Alternative 3 in winter.

Alternative 6 Modified closures areas near Stoney Campground and near the Sapphire wilderness study area which would not create any conflicts.

Alternative 6 Modified allocates 133,571 acres (49%) to winter motorized and 139,647 acres (51%) to non-motorized in winter. This alternation would have similar effects to those described under Alternative 5, with additional Recommended Wilderness proposed adjacent to existing Wilderness, consistent with the Bitterroot National Forest. (The same areas were allocated non-motorized under Alternative 5).

Montana Wilderness Study Act Areas (WSA)

The Montana Wilderness Study Act of 1977 (PL 95-150) (MWSA) required the study of certain lands to determine their suitability for designation as wilderness in accordance with the Wilderness Act of 1964. These lands are referred to as Wilderness Study Areas (WSAs). Two of the nine areas identified in MWSA were on the BDNF, West Pioneer WSA and Sapphire Mountains WSA. The Sapphire Mountains WSA (within the Upper Rock Creek Landscape) includes 56,415 acres of high elevation forests topped by the rugged mountain peaks. This area provides winter snowmobiling. Additional acres of this WSA are found on the Bitterroot National Forest. With the exception of Frog Pond Basin and the Myers Creek road, this area contains wilderness attributes. 2009 FEIS p. 428. The West Pioneer WSA (within the Pioneer Landscape) is a 153,759 acre mostly natural area with a few roads, and with cattle grazing. Popular snowmobile trails (ungroomed) connect the Big Hole Valley via Warm Springs to the Scenic Byway (2009 FEIS pg. 428).

Language in the 1977 Act required that the areas be managed to maintain their presently existing wilderness character and potential for inclusion in the National Wilderness Preservation System. The wilderness characteristics of the West Pioneer and Sapphire Mountain WSAs were assessed and the findings published in 2003 and 2006 respectively. Both the West Pioneer and Sapphire assessments concluded that when comparing changes between 1977 and 2002 (West Pioneers) or 2005 (Sapphire Mountains),neither the wilderness character of the area nor the potential for inclusion in the National Wilderness Preservation System has diminished when looking at the WSA as a whole (2009 FEIS pg. 428).

Additionally, during spring 2009, the Wilderness Institute, part of the College of Forestry and Conservation at the University of Montana (UM), worked with the Aldo Leopold Wilderness Research Institute, the Forest Service, and several local non-governmental organizations to develop indicators of wilderness character related to the four qualities of wilderness character

described by Landres and coauthors in *Keeping It Wild: An Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System* (2008). UM published their observations in a report summarizing field measures of wilderness character in the West Pioneer and Sapphire Wilderness Study Areas (WSA). Although site-specific changes in resource conditions have occurred, overall the wilderness character of the study areas, as defined by the Wilderness Act, has not diminished. Motorized use in place prior to 1977, as established by Wilderness Characteristic Assessments completed in 2003 and 2006, may continue as allowed by law (2009 FEIS pg. 433).

Under Modified Alternative 6 the West Pioneers WSA is open to OSV use. However, OSV trail grooming ceased in the West Pioneers as part of a settlement agreement in December 2009. As such there are no groomed OSV trails in the West Pioneers WSA. The settlement agreement included the following terms:

1. The Forest Service agrees that it shall modify the Grooming Decision for the 2009-2010 snowmobile season within the West Pioneers Wilderness Study Area (WSA) to only allow grooming on those trails depicted on the Map attached to this agreement as Exhibit A.
2. The Forest Service agrees that it shall terminate the Grooming Decision after the 2009-10 snowmobile season with respect to the West Pioneers WSA and thereafter no snowmobile grooming shall be conducted in the West Pioneers WSA pursuant to the Grooming Decision.
3. The Parties agree that nothing herein shall preclude the Forest Service from proposing future snowmobile grooming within the West Pioneers WSA. The Forest Service agrees that in the event it should propose to authorize snowmobile grooming within the West Pioneers WSA it shall comply with all applicable laws regarding analysis of such proposal and agrees to notify Plaintiffs and provide them the opportunity to participate in such analysis as provided by applicable law and regulation.
4. The Parties agree that monitoring of snowmobile use within the West Pioneers WSA is important and to that end agree to coordinate on such monitoring. The Forest Service agrees to monitor snowmobile use in the West Pioneers WSA. Plaintiffs agree to coordinate any monitoring they wish to fund or undertake with the Forest Service to help insure that such monitoring efforts are scientifically valid, and provide useful information. The Parties agree to meet in the fall of 2010 to discuss both future monitoring needs and previous years' monitoring results of snowmobile use in the West Pioneers WSA. Wildlands CPR v. Tidwell, CV09-00075 DWM (D. Mt. 2009) (Stipulated Settlement Agreement, Dec. 17, 2009).

Trail counters were used as a relatively simple, low cost means of measuring snowmobile use in the West Pioneers WSA. A weekly count of snowmobiles passing through access portals into the WSA was conducted to provide a relative measure of use over time. Aerial observations were considered by the plaintiffs in order to plot the geographic extent of winter use in the West Pioneers WSA, in coordination with flights already taking place through the Greater Yellowstone Coordinating Committee winter use monitoring efforts. Due to lack of funding, however, the planned flights and 4-hour manual count sessions proposed for the access were not conducted. Only trail counter data was collected in the 2010 season.

Table 34: Trail Counter Readings in West Pioneer WSA, March 2010.

	Harrison Park	Wyman Cr	Lacy Cr	Pettengill	Remarks
Feb, 26, 2010 (Fri.)					*Counters Installed*
March 5, 2010 (Fri.)	59	13	38	50	
March 10, 2010 (Wed.)	9	9	7	9	
March 19,2010 (Fri.)	9	9	27		Unable to reach Pettengill due to low snow
March 26, 2010 (Fri.)	0	4	0	57[12]	*Counters Pulled*
Total Counts	77	35	72	116	

For the Sapphire Mountain WSA on the BDNF 22% is open to OSV use in Modified Alternative 6. Forest Plan p. 260-261. Alternative 6 Modified closed the majority of the Sapphire WSA to OSV use, while leaving only the Frog Pond Basin and Meyers Creek road area open. There is no OSV trail grooming in the Sapphire WSA.

Alternative 6 Modified closed a portion of the Sapphire WSA to OSV use, while leaving another portion (the Frog Pond Basin area) open. In a recent decision (May 11, 2016) the Bitterroot National Forest Supervisor closed the entire portion of the Sapphire WSA on the Bitterroot National Forest to OSV use This decision may create a difference in use near the divide of the WSA since the west side of the mountain range divide is no longer open to OSVs. The mountain range divide is an easily definable boundary.

Different classes of motor vehicle uses of National Forest System lands or neighboring Federal lands

Effects Common to All Alternatives in All Landscapes

There is very little use by any other motorized vehicles during the winter season in areas proposed for snowmobile use. Snowmobiles are the primary motor vehicles in use during winter. The only potential conflict among different classes of motor vehicle use in winter is early spring ATV use on roads designated for wheeled motor vehicle use yearlong and tracked OHVs. Full size vehicles also occasionally use open routes when snow levels are low. Legal ATV and full size vehicle use can rut the snow enough to make snowmobile use difficult. However, this conflict is result of route designation for wheeled vehicles, not area OSV designation considered here.

Assessments have been completed regarding conflicts between snowmobiles and tracked OHVs (Trails Working Coalition, 2014; Trails Working Coalition, 2015). The 2014 assessment compared impacts from operation of snowmobiles and tracked OHVs on groomed routes and documented depth impressions from each vehicle type during aggressive starts, aggressive stops, and high speed pass by on both straight and winding route segments. The field evaluations showed little difference between snowmobile and tracked OHV impacts. The 2015 field assessment focused on observing potential impacts from riding on groomed snowmobile routes and off-route

[12] Pettengill was a suspect count for March 26, 2010, because it had been two weeks since the later reading; however, there was evidence of at least three vehicles, each pulling a trailer going around the road closure at Pettengill at least to Wyman.

operation of tracked OHVs in open cross-country areas. Key findings were that none of the tracked OHVs observed operating on groomed snowmobile routes created rutting of the trail or any other adverse effects to the groomed trail surface. Track impressions left in the uncompacted new snowfall by tracked OHVs, were no different than what would have been left by a snowmobile during through the same new snow.

Conflicts between classes of motor vehicle uses have not been observed.

There are no other classes of motor vehicle uses that would potentially conflict with snowmobile use.

There are no projected conflicts between different classes of motor vehicles in winter in any landscape or any alternative.

Existing and Reasonably Foreseeable Changes in OSV Technology

The 2009 FEIS projected increased OSV use and potential changes in OSV technology. For example, many of the technological advancements that make snowmobiles more capable in the backcountry today appeared within the past decade, but competitive development continues in the industry. This is evident on the World Wide Web by visiting a number of industry websites and reports produced by the four major manufacturers of snowmobiles (Arctic Cat, BRP-Ski Doo, Polaris Industries, and Yamaha Motor Corporation), each of which describe their production lines of snowmobiles, with many models designed specifically to handle back country, “mountain” conditions. There is a developing niche for extreme off-trail machines, designed for athletic snowmobilers interested in hill climbing and powder riding, and there are machines being produced for these riders. Some of the features include racing seats and high-grip, snow-shedding running boards that can more easily accommodate the combination of sitting, standing, and footwork that accommodates more extreme riding. The tracks are typically longer, more aggressive to handle mountain terrain and powder; shocks and suspensions are made for rougher bumps and jumping, the engines are powerful but light, and have special cooling systems to prevent the machine from overheating. Additionally, snowmobile clothing and avalanche protection equipment have advanced to accompany snowmobilers into the backcountry.

A search on the World Wide Web will also reveal that there is enthusiasm amongst certain segments of the recreating public in backcountry snowmobiling. There one can find a number of recreation magazine articles, blogs and videos portraying backcountry snowmobiling experiences and activities. Most of enthusiasts describe a desire for physically challenging, alpine terrain with deep fresh powder, and many appreciate the low levels of crowding found in the backcountry. Many seek these conditions not just for a sense of solitude, but in knowing that they are interacting with extreme terrain that not everyone is capable of handling. Many backcountry skiers are also using snowmobiles as a means to gain access to these mountain and powder conditions and to non-motorized areas that, due to distance, would not normally be accessible without first using a snowmobile. Snowmobiles allow these skiers to reach day-trip distances of 10-20 miles from where they park their full-sized vehicle.

The extent to which backcountry winter use has increased on the BDNF is unknown; however, through agency patrolling and monitoring, common interactions with the public (including

comments provided for this project), and responses to avalanche events and wintertime search and rescue, the BDNF is certain that backcountry snowmobiling is occurring and gaining in some degree of popularity on the BDNF. There is concern amongst some members of the public that winter motorized use pushing further into the backcountry than before. While this use is existing and reasonably foreseeable, it is difficult to predict the location and extent that changes in OSV technology will occur. At this time, it is believed that backcountry winter use is fairly limited on the BDNF.

Another example of changing technology is the use of snow bikes (created by installing an after-market kit that allows dirt bikes to be converted to include a ski on the front and a track on the rear). There has been very limited use of these machines believed to be occurring on the BDNF; however, there is concern amongst some members of the public that snow bikes are being used in places previously inaccessible to snowmobiles.

Montana Department of Fish, Wildlife and Parks (FWP) defines a snowmobile as "a self-propelled vehicle of an overall width of 48" or less, excluding accessories, designed primarily for travel on snow or ice, that may be steered by skis or runners and that is not otherwise registered or licensed under the laws of Montana" (please see http://fwp.mt.gov/education/outdoorRec/snowmobile.html). Under this definition, snow bikes are subject to the same allowances, restrictions and prohibitions as snowmobiles on the BDNF. The OSV Rule (2015) requires that the Forest Service designates over snow use by class of vehicle and time of year. 36 CFR 212.81(a). The Department included class of vehicle to enhance consistency with subpart B, to allow Responsible Officials to take into account changing technology in OSVs. As national forests and grasslands make decisions for OSV use, an over snow vehicle use map (OSVUM) is published, showing what roads, trails and areas are open to OSVs, by class of vehicle and time of year. Snow bikes are regulated along with snowmobiles to meet state definitions and law, and Forest Service regulations. As the changes in technology emerge in ways that indicate a need for change in management on the ground, the BDNF can conduct analysis accordingly, make new decisions and update the OSVUM as needed. OSVUMs are published annually whether there are changes or not.

Compatibility of motor vehicle use with existing conditions in populated areas, taking into account sound, emissions, and other factors

Effects Common to All Alternatives in All Landscapes

The analysis area is very rural in nature. The population density of southwest Montana is 7.2 people per square mile, with local population densities ranging from 1 to 47 persons per square mile. While Montana continues to grow, with a 9.7% increase in population at the 2010 Census, the analysis area of southwest Montana grew at a much slower rate. The southwest region is projected to grow at the slowest rate in the state for both 2010 to 2020 and 2010 to 2030 time periods (SCORP, 2014).

While there may be short term localized impacts to sound and emissions under all the alternatives, these are isolated and dispersed and are considered negligible in each landscape

under all alternatives.

Sound

Noise from snowmobiles was not identified as an issue during the revision process. The distance winter motorized noise can be heard is variable; it depends on the type and number of snowmobiles as well as air density. Noise is also absorbed relatively quickly by the presence of deep snow and affected by wind direction and terrain. Depending on the day, snowmobile noise may be muted within hundreds of yards or be perceptible several miles away.

In all landscapes and all alternatives, OSV use would contribute to noise which has the potential to impact some visitor's recreation experience. Alternative 1 and 4 provide the least amount of non-motorized areas (526,537 and 524,304 acres respectively), while Alternative 3 provides the largest number of non-motorized acres (1,540,529). Alternative 2 provides 746,000 acres non-motorized area. Alternative 5 (1,260,191 acres) and Alternative 6 Modified (1,336,553 acres) are similar. In any of the alternatives, the size, location, and configuration of the motorized and non-motorized allocations are displayed so users can find locations to meet their various recreational pursuits and expectations.

Snowmobiles produced since 1975 are certified to emit no more than 78 decibels from a distance of 50 feet when traveling at full throttle. Exhaust noise is considered to be the primary noise source. Changes in snowmobile design to a 4 stroke engine or a 2 stroke engine equipped with a muffler have provided a reduction in exhaust noise.

The Forest Service has the authority to enforce noise standards set by other federal agencies and by states according to 36 CFR 261.15(d). The Forest Service also has the authority to set specific limitations through Special Order 36 CFR 261.55(d). However, there are currently no special orders in place for noise restrictions. Montana Stat Code 23 2 634 regulates snowmobile noise and sets a decibel limitation on machines that were built after 1975 of 78 dbA, measured at 50 feet.

Literature Review Summary Regarding Sound Impacts

Winter acoustic modeling in Yellowstone National Park conducted over the past 12 years found that audibility depends on the sound level of and distance from the sound source as well as the presence of other natural sounds and non-sound source variables, such as atmospheric conditions, wind speed and direction, topography, snow cover, and vegetative cover. These various factors vary spatially and temporally and can influence day to day noise from snowmobiles at any given location. Added together, they reduce the potentially close relationship between the number of snowmobiles and percent of time audible (Burson, 2014). The range of audible sound levels for humans is generally considered to be from 0 to 130 A-weighted decibels (dBA). The YNP lists the sound level of 2-stroke snowmobiles at 70 dBA; 4-stroke snowmobiles at 60 dBA; and winter non-motorized backcountry at 20 dBA.

Noise from OSVs has an impact on the quality of users' experience and can detract from the natural setting they wish to enjoy. Many people enjoy recreating on public land to escape the noise of modern civilization; the natural sound-scape and tranquility is a condition that they seek as part of their recreation experience. Effects of this noise on individual users within

earshot is highly subjective and, therefore, variable. It largely depends on the expectations of the non-motorized user.

Emissions

Air quality requirements are defined by existing laws and regulations. Snowmobile emissions include carbon monoxide, oxides of nitrogen, and particulate matter. Conflicts can arise when recreation use occurs alongside non-motorized pursuits, where clean-smelling air is desirable. For all alternatives, cumulative impacts on air quality from forest management would be small, and in general, temporary and localized; all areas of the BDNF currently meet state and federal air quality standards and show no degradation to visibility or other air-quality-related values (2009 FEIS page 92).

Compliance with local, state, and federal air quality regulations ensure any of the alternatives would continue to protect air resources on the BDNF and not contribute to air quality degradation to surrounding areas. Desired conditions, objectives, standards, and prescriptions concerning air quality are consistent with legal requirements and are common to all alternatives.

Musselman and Korfmacher found significant differences in air quality at a snowmobile staging area in Wyoming during higher use periods (weekends) than lower use periods (weekdays) and seasonal differences (winter versus summer). However, Musselman and Korfmacher concluded that "…air pollution concentrations were generally low both winter and summer, and were considerably lower than exceedance levels of NAAQS" and "…pollutant concentrations were low and not likely to cause significant air quality impacts even at this high snowmobile activity site."

Snowmobile emissions monitoring at West Yellowstone indicated no instances where National Ambient Air Quality Standards or Montana Ambient Air Quality Standards were exceeded. OSV areas on the BDNF receive much less use than West Yellowstone, so it is reasonable to expect that there would also be no instances of exceedance on the BDNF. While some alternatives have more areas closed to snowmobiling, this is expected to displace snowmobile use rather than decrease the amount of overall use.

Socio-Economic Factors

Effects to social and economic factors were analyzed in the 2009 FEIS (Page 219). Changes to the number of snowmobile visits were calculated using potential groomed and marked route closures. Groomed and marked routes provide an opportunity that is more limited than open snowmobile play areas. The BDNF currently provides large areas open to snowmobiles which are unused due to snow levels, terrain, or conifer cover.

The percent of snowmobile closures in each alternative were directly applied to the number of visits reported by snowmobilers. Percentages closed were derived by reviewing each individual non-motorized unit or recommended wilderness area closed to motorized use by alternative. This methodology exaggerates the effect of closures on visits by snowmobilers because many visitors would simply move to another area on the forest which provides the opportunity they seek, rather than ceasing the activity.

Alternatives 1, 2, 4, 5 and 6 Modified show small shifts in recreation based employment and labor income resulting from variations in recreation allocations. Changes in recreation-based employment are estimated to vary by 11 jobs and $247,000 in labor income between the high (Alternatives 1, 2, and 4) and low (Alt 3) alternatives. This is for all aspects of recreation, not just winter recreation. Forest Service revenues and payments to counties won't change based on recreation or travel changes.

Customer satisfaction can serve as another measure of compatibility of motor vehicle use. To describe customer satisfaction, several different measures are used during the NVUM surveys. Visitors were asked to provide an overall rating of their visit and rate their satisfaction with recreation services. Over 70% of the visits were very satisfied with their recreation experience and less than 2% were very dissatisfied (NVUM 2010). This is not anticipated to change under any alternative in any landscape because no crowding is anticipated.

There are no populated areas affected by winter motor vehicle use and winter recreation is compatible with the existing condition in all landscapes and all alternatives.

Big Hole Landscape

The Big Hole Landscape is not densely populated and rural in nature. Population density in Beaverhead County is 1.7 persons per square mile. Winter motor vehicle use is compatible with the existing populated areas in all alternatives.

Boulder River Landscape

The analysis area is rural in nature, but receives use from nearby communities of Butte, Deer Lodge and Boulder. The population density of 47 persons per square mile in Silver Bow County is considered a very low population density. Winter motor vehicle use is compatible with the existing populated areas in all alternatives.

Clark Fork Flint Landscape

The analysis area is rural in nature, but receives use from nearby communities. The population density of 13 persons per square mile in Anaconda-Deer Lodge area is considered not densely populated. Winter motor vehicle use is compatible with the existing populated areas in all alternatives.

Gravelly Landscape

The analysis area is rural in nature, but receives use from nearby communities. The population density of 2 persons per square mile in Madison County area is considered not densely populated. Winter motor vehicle use is compatible with the existing populated areas in all alternatives.

Jefferson River Landscape

The analysis area is rural in nature, but receives use from nearby communities. The population density of 47 persons per square mile in the Butte area is considered not densely populated.

Lima Tendoy Landscape

The analysis area is rural in nature, but receives use from nearby communities. The population density is 1.7 persons per square mile in Beaverhead County. The Landscape is not densely populated. Winter motor vehicle use is compatible with the existing populated areas in all alternatives.

Madison Landscape

The analysis area is rural in nature, but receives use from nearby communities. The population density is 2 persons per square mile in Madison County. The Landscape is not densely populated. Winter motor vehicle use is compatible with the existing populated areas in all alternatives.

Pioneer Landscape

The analysis area is rural in nature, but receives use from nearby communities. The population density averages 2 persons per square mile in this area. The Landscape is not densely populated. Winter motor vehicle use is compatible with the existing populated areas in all alternatives.

Tobacco Root Landscape

The analysis area is rural in nature, but receives use from nearby communities. The population density averages 2 persons per square mile in this area. The Landscape is not densely populated. Winter motor vehicle use is compatible with the existing populated areas in all alternatives.

Upper Clark Fork Landscape

The analysis area is rural in nature, but receives use from nearby communities. The Upper Clark Fork Basin contains Butte urban area. The population density averages 14 to 47 persons per square mile in this area. Winter recreation is compatible with the existing condition.

Upper Rock Creek Landscape

The Landscape is not densely populated and is rural in nature, though it does receive use from nearby communities. The population density is 1.6 persons per square mile in Granite County. Winter motor vehicle use is compatible with the existing populated areas in all alternatives.

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Appendix A General Big Game Winter Range Maps

Due to the large electronic file size of these maps and challenges experienced by some users attempting to download the Draft SEIS from the web page, we have electronically posted Appendix A as a separate document. Please click here:
http://www.fs.usda.gov/project/?project=47722

Figure A- 1: Antelope Winter Range

Figure A- 2: Elk Winter Range

Figure A- 3: Moose Winter Range

Figure A- 4: Mule Deer Winter Range

Figure A- 5: General Big Game Winter Range

Figure A- 6: Alternative 1 – Winter Recreation Allocations and General Big Game Winter Range

Figure A- 7: Alternative 2 – Winter Recreation Allocations and General Big Game Winter Range

Figure A- 8: Alternative 3 – Winter Recreation Allocations and General Big Game Winter Range

Figure A- 9: Alternative 4 – Winter Recreation Allocations and General Big Game Winter Range

Figure A- 10: Alternative 5 – Winter Recreation Allocations and General Big Game Winter Range

Figure A- 11: Alternative 6 Modified – Winter Recreation Allocations and General Big Game Winter Range

Figure A- 12: White-tailed Deer Winter Range

Appendix B Bighorn Sheep Maps

Due to the large electronic file size of these maps and challenges experienced by some users attempting to download the Draft SEIS from the web page, we have electronically posted Appendix B as a separate document. Please click here:
http://www.fs.usda.gov/project/?project=47722

Figure B- 1: Bighorn Sheep Winter Range

Figure B- 2: Alternative 1 – Winter Recreation Allocations and Bighorn Sheep Winter Range

Figure B- 3: Alternative 2 – Winter Recreation Allocations and Bighorn Sheep Winter Range

Figure B- 4: Alternative 3 – Winter Recreation Allocations and Bighorn Sheep Winter Range

Figure B- 5: Alternative 4 – Winter Recreation Allocations and Bighorn Sheep Winter Range

Figure B- 6: Alternative 5 – Winter Recreation Allocations and Bighorn Sheep Winter Range

Figure B- 7: Alternative 6 Modified – Winter Recreation Allocations and Bighorn Sheep Winter Range

Appendix C Mountain Goat Maps

Due to the large electronic file size of these maps and challenges experienced by some users attempting to download the Draft SEIS from the web page, we have electronically posted Appendix C as a separate document. Please click here:
http://www.fs.usda.gov/project/?project=47722

Figure C- 1: Mountain Goat Winter Range

Figure C- 2: Alternative 1 – Winter Recreation Allocations and Mountain Goat Winter Range

Figure C- 3: Alternative 2 – Winter Recreation Allocations and Mountain Goat Winter Range

Figure C- 4: Alternative 3 – Winter Recreation Allocations and Mountain Goat Winter Range

Figure C- 5: Alternative 4 – Winter Recreation Allocations and Mountain Goat Winter Range

Figure C- 6: Alternative 5 – Winter Recreation Allocations and Mountain Goat Winter Range

Figure C- 7: Alternative 6 Modified – Winter Recreation Allocations and Mountain Goat Winter Range

Appendix D Grizzly Bear Maps

Due to the large electronic file size of these maps and challenges experienced by some users attempting to download the Draft SEIS from the web page, we have electronically posted Appendix D as a separate document. Please click here:
http://www.fs.usda.gov/project/?project=47722

Appendix E Canada Lynx Map

The Lynx map is an interactive PDF which allows you to zoom in for detail in any area of interest. It does not print like a static map and is therefore posted as a separate doc so that you can print this document if you choose.

If you are not on the web go to this URL: www.fs.usda.gov/project/?project=47722

If you are looking at this document on a CD Rom, the map is on the CD also.

Figure E- 1: Canada Lynx Occupied and Unoccupied Habitat in the Northern Rockies

Appendix F Wolverine Maps

Due to the large electronic file size of these maps and challenges experienced by some users attempting to download the Draft SEIS from the web page, we have electronically posted Appendix F as a separate document. Please click here:
http://www.fs.usda.gov/project/?project=47722

Figure F- 1: Wolverine Modeled Denning Habitat (Heinemeyer et al. 2001) and Spring Snow (Copeland et al. 2010)

Figure F- 2: Alternative 1 – Winter Recreation Allocations and Wolverine Denning Habitat

Figure F- 3: Alternative 2 – Winter Recreation Allocations and Wolverine Denning Habitat

Figure F- 4: Alternative 3 – Winter Recreation Allocations and Wolverine Denning Habitat

Figure F- 5: Alternative 4 – Winter Recreation Allocations and Wolverine Denning Habitat

Figure F- 6: Alternative 5 – Winter Recreation Allocations and Wolverine Denning Habitat

Figure F- 7: Alternative 6 Modified – Winter Recreation Allocations and Wolverine Denning Habitat

Figure F- 8: Wolverine Maternal Denning Habitat (Inman et al. 2013)

Figure F- 9: Alternative 1 – Winter Recreation Allocations and Wolverine Maternal Habitat

Figure F- 10: Alternative 2 – Winter Recreation Allocations and Wolverine Maternal Habitat

Figure F- 11: Alternative 3 – Winter Recreation Allocations and Wolverine Maternal Habitat

Figure F- 12: Alternative 4 – Winter Recreation Allocations and Wolverine Maternal Habitat

Figure F- 13: Alternative 5 – Winter Recreation Allocations and Wolverine Maternal Habitat

Figure F- 14: Alternative 6 Modified – Winter Recreation Allocations and Wolverine Maternal Habitat

Appendix G Response to Comments on the Draft SEIS

Due to the extensive public comments provided by more than 200 individuals and organizations on the 2015 Draft SEIS, the comments and agency responses are voluminous. We have electronically posted Appendix G as a separate document. Please click here: http://www.fs.usda.gov/project/?project=47722

Appendix H BDNF Snowmobile Route Maps

Because BDNF Snowmobile Route maps are quite large, they are not bound with printed copies of the SEIS. In addition, they are not electronically attached to the SEIS. If you are not on the web please go to this URL: www.fs.usda.gov/project/?project=47722. Due to their large size, maps are electronically posted by individual geographic areas. Please select the map of interest and be patient. It will take a bit of time before the map successfully downloads.

If you are looking at this document on a CD Rom, the maps are on the CD also.

Figure H- 1: Madison Area Snow Trails

Figure H- 2: Snowmobile Routes – Pintler Ranger District

Figure H- 3: Beaverhead-Deerlodge Snowmobile Routes – North

Figure H- 4: Pioneer Mtn. Snowmobile Routes